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ABSTRACT

This publication contains 19 refereed research papers, 2 innovative instructional practices papers, 2 presentations on works in progress, and 3 papers on research training on promoting excellence in research and teaching for business. The research papers are "Business Demands for Web-Related Skills as Compared to Other Computer Skills" (Groneman); "Business Education Students' Preferred Learning Styles" (Stitt-Gohdes, Crews, McCannon); "Chinese Communication Styles and Techniques in International Business Negotiations" (Zhao); "College Students' Use of Computer Technology and Its Relationship to Constructivist Learning" (Gueldenzoph); "Comparison of Diskette and Traditional Paper and Pencil Mail-Out Survey Methods for Measuring Self-Directed Learning with the OCLI" (Bartlett); "Comparison of Recruiters' and Students' Preferences Concerning Resume Design and Content" (Wilkinson, Hemby); "Comparison of Turnover and Retention Factors of Secondary and Postsecondary Business and Marketing Education Teachers" (Ruhland); "Comparison of Workforce Skills Desired by Business Leaders vs. North Carolina Business Education Standard Course of Study" (Abram, Joyner); "Exploration of Self-Directed Learning" (Bartlett); "Frequent Language-Mechanics Errors Made in Manuscripts Submitted to The Delta Pi Epsilon Journal" (Blaszczynski, Scott); "Interrelationships Among Managerial Communication, Attitude, and Behavior" (Zhao); "Perceptions About Three Major Indigenous English-Language Accents" (Scott, Green, Rosewarne); "Preliminary Attitudes Towards Online Testing in Business Education Courses" (Bartlett, Alexander, Reynolds); "Reliability and Validity of the Group

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Member Rating Form" (Chalupa, Chen, Sormunen-Jones); "Students as Action Researchers" (Davis, Bartlett); "Student Perceptions of Plateaus Encountered in Court Reporting Skills Building Classes" (Sheets, Morse); "Study of Management Training Program for the Middle-Level Managers" (Wen, Lee); "Top Five Communication Skills Needed by Information Systems Graduates as Perceived by Information Systems Professionals" (McCannon, Crews); and "Trends Occurring in Business and Industry Regarding Information Systems and Technologies" (Gonzenbach, Davis). Papers on innovative instructional practices are "Strategies for Integrating Assistive Technology for Students with Disabilities" (Rader) and "Teaching Voice Recognition Systems" (Bland). The work in progress studies are "Business Students' Perceptions of Electronically-Enhanced Learning" (Braathen) and "Evaluating the Ethical Attitudes of Business Seniors at a Large Midwestern University" (Meeks). Research training papers are "Grant Writing" (Redmann); "Strategies for Using the Statistical Package for the Social Sciences for Business Education Research" (Blaszczynski, Green); and "Tools for Framing Research Problems" (Stout, McQueen). (YLB)



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PART I
REFEREED RESEARCH PAPERS

Business Demands for Web-Related Skills as Compared to Other Computer Skills

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Abstract

To prepare students for computer jobs in the 21st century, curriculum designers must determine the computer skills needed in the business world. The purpose of this study was to determine the number of computer-related want ads across the United States that list web-related skills as compared to other computer skills. Out of 23,704 computer want ads, the most frequently listed computer skills were UNIX, SQL database programming, and computer security. Those three skills are both web-related skills and general computer skills. Four skills not listed in any of the 23,704 want ads were Pagemill, Microsoft Office Certification, Director, and Flash 4. Computer educators should evaluate their curriculums to determine whether the most frequently listed computer skills in the want ads are being taught.

Introduction

To prepare students for work in the 21st century, educational institutions must teach students the skills that employers seek (Cauley, 1997). The rapid increase in the usage of the Internet for e-commerce may bring about unexpected demand for employees who have computer skills related to all aspects of Internet usage. To meet those demands, business curriculums may need major revisions or additions. Major curricular innovations require an examination of marketplace needs (Mayo and Miciak, 1997).

Business educators determined many years ago the necessity of having a close relationship between the computer skills required by employers and the computer course content they teach. However, educational institutions that offer computer courses have always found it difficult to keep up with the new and emerging computer skills needed by employees in business. To help secondary schools and colleges determine appropriate computer curriculum content, educators need to know the current computer skills required by employers.

Statement of the Problem

This research study was designed to answer the following questions:

1. Across the U.S., are web-related skills in demand as compared to computer programming skills and other computer skills?
2. Based on the needs of businesses, which computer skills should be emphasized and which ones should be de-emphasized in educational institutions?

Methodology

This study was conducted in several steps. The first step was to review the literature in order to identify work skills related to computer careers. The second step was to identify World Wide Web sources to use to gather data related to computer jobs available across the country. The third step was to analyze the data and make recommendations concerning computer curriculum content that should be emphasized or de-emphasized in educational institutions.

Various sources were reviewed to identify a list of computer skills to be used to collect the data (Jerran, 1994; Kaplan, 1996; Arney, 1998; Gonzenbach, 1998; Gonzenbach and Davis, 1999;). In addition to those sources, computer skills frequently taught in secondary schools and colleges were used as key terms to gather data.

After reviewing several web sites that list job openings, www.careerpath.com was selected. This site was selected because it listed both newspaper want ads for major papers across the U.S. and also want ads posted on its own web site. After doing a pilot test involving querying several different want ad web sites, www.careerpath.com was also selected because of the large number of computer related want ads (over 20,000 per week) that were listed.

After identifying a list of computer skills, 1,006 computer want ads in four major newspapers (Atlanta, Chicago, LA, and New York) and 22,698 online computer want ads were queried in the third week of February 2000.

Findings

The data in these findings is based on an analysis of 23,704 want ads in four major U.S. newspapers and in online want ads. Computer skills were divided into three groups: web-related skills,

computer programming skills, and other computer skills. Web-related skills included any specialized skills needed to create web pages, to operate a web server, or to set up an Intranet. Because the Internet and private Intranets are a part of many local area networks, some computer skills such as computer security may be listed as "web-related skills" as well as in the category of "other computer skills."

The following information was gathered from 1,006 newspaper want ads and 22,698 Internet site want ads listed in the computer category. The most frequently mentioned computer skills are listed in Table 1. Of the top 20 computer skills analyzed in the want ads, only four were not directly related to the Web. Therefore, it can be concluded that many computer jobs require web-related skills.

Based on the 23,704 want ads that were analyzed, the computer skill listed most frequently was UNIX. UNIX is an operating system that is used frequently on web servers and for scientific applications. SQL, the second highest-ranking skill, is a programming language used to create web site databases as well as non-web site databases. Computer security ranked third. Security is considered both a web-related skill and a general computer skill. TCP/IP, the communications protocol for Internet communications, was the highest-ranking skill related only to web-based skills.

Out of 35 computer skills, the lowest ranked skills were Pagemill, Microsoft Office Certification, Director, and Flash 4. Those four skills were not listed in any of the 23,704 want ads queried. Besides Director and Flash 4, several other multimedia skills were not ranked highly either. Dreamweaver was listed in only 62 ads, Shockwave in 26 ads, and Adobe Illustrator in 24 ads.

Two web editor software programs were listed in very few computer want ads. FrontPage was mentioned in 18 ads and Pagemill in 0 ads. Higher-level web page creation skills such as HTML, CGI, XML, PERL, and Javascripting were mentioned in more want ads than FrontPage or Pagemill.

Frequency of programming skills listed in the computer want ads were as follows: SQL, 3,120 ads; C++, 1,242 ads; JAVA, 572 ads; HTML, 344 ads; Perl, 324 ads; Visual BASIC, 227 ads; COBOL, 118 ads, and Visual C++ in 56 want ads.

Of the skills related to using computer operating systems, UNIX was the highest rated skill, mentioned in 4,694 ads, followed by Windows NT and Linux.

Implications for Computer Curriculums

To meet the demands of businesses for employees with web-related skills, schools need to offer coursework covering the UNIX operating system, SQL programming, computer security, and other frequently used skills. Educators should scrutinize their curriculums to determine if they are teaching UNIX, a skill that can prepare students for over 4,000 jobs, according to this study.

Table 1
Frequency of Computer Skills Mentioned In Computer-Related Want Ads
N=23,704

Computer Skills	Internet/ Intranet Related Skills	Computer Programming Skills	Other Info Systems	No. of Want Ads	Rank
UNIX	X		X	4,694	1
SQL	X	X		3,120	2
Security	X		X	2,153	3
Windows NT			X	1,417	4
C++		X		1,242	5
TCP/IP	X			1,196	6
Internet	X			664	7
A+ certif.			X	821	8
JAVA	X	X		572	9
Cisco			X	491	10
Intranet	X			458	11
Lotus Notes	X			455	12
Microsoft Office			X	433	13
MCSE Certif.			X	372	14
HTML	X	X		344	15
PERL	X	X		324	16
Web server	X			271	17
Linux	X		X	259	18
Photoshop	X			222	19
Visual BASIC	X	X		227	20
LAN security			X	194	21
Multimedia	X			165	22
Javascripting	X	X		133	23
XML	X	X		116	24
COBOL		X		118	25
CGI scripting	X	X		115	26
Dreamweaver	X			62	27
Visual C++		X		56	28
Shockwave	X			26	29
Illustrator	X			24	30
FrontPage	X			18	31
Flash 4	X			0	32
Director	X			0	33
Microsoft X Office Certif.				0	34
Pagemill	X			0	35

Because of a large number of new web-related skills needed by employees in businesses, current information systems curriculums may not allow the additional courses that cover those skills. Curriculum planners may want to consider creating new Internet Technology or E-commerce curriculums to address these emerging skills.

Current course offerings related to computer programming should be analyzed. It is apparent there is a greater need for employees who know JAVA and C++ than COBOL. New programming

languages such as JAVA and C++ should be taught and the need for COBOL programming should be evaluated.

The computer skills mentioned least frequently in the want ads should have as much impact on curricular decision making as the most frequently mentioned skills. While it is easy to learn to create simple web pages using FrontPage or Adobe Pagemill, it appears most businesses use HTML, PERL, Visual BASIC, Javascripting, and JAVA to create their web pages. To prepare students to create web pages for the business world, therefore, schools should teach HTML, PERL, Visual BASIC, Javascripting, and JAVA.

Certain web-related skills are not used frequently in the business world according to this study. Curriculum planners should consider not offering instruction on Adobe Pagemill, Director, and Flash 4 – skills that will prepare students for virtually no jobs, based on the data collected in this survey.

Educators and school administrators should consider the number of jobs across the United States that require multimedia skills such as Shockwave, Flash, Dreamweaver, and Director. At this time, it appears those skills are not in demand in the business world. The small number of multimedia skills needed should be compared to the monetary cost of multimedia hardware and software as well as the opportunity cost of lost class time that could be devoted to the development of other skills. As multimedia changes over the next few years, the need for these skills may also change.

The primary curriculum development principle to follow is that business educators need to compare their computer curricular offerings with the requirements of businesses on an ongoing basis. Analyzing want ads is only one method of determining marketplace needs and is only one source that should be used in curricular decision making.

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www.careerpath.com

Business Education Students' Preferred Learning Styles

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Abstract

"Knowing the kinds of learning experiences that students most value may help instructors develop alternative course structures that provide a better fit between their instructional goals and the learning style preferences of their students" (Canfield, 1992, p. 1). The *Canfield Learning Styles Inventory* was administered to 212 business education students at eight high schools in a large Southeastern state. The most preferred learning style was **Independent**; the least preferred was **Iconic**, learning situations and activities involving a graphic or pictorial representation.

Introduction

"Student outcomes are the bottom line of a school program. The demand for higher standards, so prevalent today, may result in raising the bar higher but not in helping students vault it. The key to helping more students achieve in our schools would seem to involve offering them different ways to reach common goals" (Jenkins, 1988, p. 41). Early in this millennium education reform has again become a focal point. And, as in years past, it appears to focus primarily on English and math skills. One could hardly argue their value and merit. However, to simply require more English and math courses without any kind of student diagnosis would be analogous to telling our students they will all get new shoes; and, since a size 8 is common, everyone will get size 8 shoes! Of course they would all get the same thing, but it clearly would not--literally--fit their needs.

It is no different with student learning. For students to reach higher standards and learn all they can, learning situations that are best for **students** need to be developed and encouraged. In other words, individual characteristics of students emerge in their school behavior which provide insight as to how their minds work and, thus, how they learn. Therefore, "knowing the kinds of learning experiences that students most value may help instructors develop alternative course structures that provide a better fit between their instructional goals and the learning style preferences of their students" (Canfield, 1992, p. 1).

A paucity of research exists in business education in the area of learning and instructional preferences. Ladd (1995) found the business education teachers participating in her study did not teach the way they preferred to learn. However, Stitt-Gohdes, Crews, and McCannon (1999), surveying NABTE faculty and

high school business education teachers, found these educators do prefer to teach as they learn. Research involving secondary business education teachers and students is important for several reasons. First, business education students are taught in computer classrooms and/or traditional classrooms. Learning and instructional styles may vary depending on the physical environment in which learning takes place. Second, typically students with varying academic interests and abilities enroll in business education classes, which are the most frequently selected classes under the career and technical education umbrella. It is reasonable to find a variety of learning and instructional preferences in the students and teachers. Finally, today business education teachers may enter the classroom via traditional preparation programs or alternate certification programs. All these factors have the potential to influence both instruction and learning, meriting scholarly inquiry.

While any number of inventories exist which attempt to identify learning preferences, they all approach the task from different perspectives. The Embedded Figures Test (EFT) attempts to measure field independence/dependence (Bonham, 1988). A weakness of this instrument is it measures only one ability with the opposite ability only implied. The Kolb Learning Style Inventory consists of only 12 items, resulting in the criticism of brevity and reliability (Bonham, 1988). Options for these items are also "presented in the same order, increasing possibility of response set" (Bonham, 1988, p. 14). A criticism of the Canfield Learning Styles Inventory is its forced-choice nature of having to rank alternatives from most preferred to least preferred.

A common thread, however, is woven throughout these inventories and that is most are self-reporting, "their accuracy is dependent on subjects knowing themselves and wanting to reveal that

knowledge" (Bonham, 1988, p. 12). Therein is perhaps both the good news and the bad news. The good news is that, if administered, learners at least have a voice in indicating their learning preferences. The bad news is how well students, especially high school students, really know themselves and are able to discern inherent learning preferences from acquired learning preferences. For just as people who are short learn to use ladders to compensate for their shortness, learners, too, sometimes learn to compensate for their challenges in the learning process.

As classroom demographics continue to change, this issue of providing the optimum learning environment for all students becomes an even greater challenge. Today in some parts of the United States, minorities comprise a majority of the student population. It is projected that early in this century the majority of growth in the labor force will be made up of women and minorities (Stitt-Gohdes, 1996).

Thus, the problem exists of wanting to provide the optimum learning environment while recognizing the myriad of individual learning preferences in the classroom every day.

Purpose of the Study

Research on learning establishes a variety of factors that affect learning: prior knowledge, context, social factors, and environment. Clearly if these are not considered in any way, there is no reason to believe most students will achieve, much less excel, in the classroom and beyond. Therefore, the purpose of this study was to determine the preferred learning styles of a selected group of high school business education students. The *Canfield Learning Styles Inventory* was administered to 212 business education students at eight high schools in a large Southeastern state.

Research Method

Population

The high school business education students who participated in this study were selected as a result of their teachers having participated in the first step of a three-part research project. The first step involved a determination of a randomly selected group of high school business education teachers' preferred learning and instructional styles. The second step determined whether a match existed between eight high school business education teachers' preferred instructional styles and their students' preferred learning styles. This third step involved a closer examination of the students' preferred learning styles with an eye toward recommendations for addressing varying learning styles in the classroom. Therefore, for the present study, those high school business education teachers who participated in step two were invited to administer the *Canfield Learning Styles Inventory* (LSI) to, if possible, two groups of their business education students: one in a computer-based class and one in a traditional, non-computer-based class. The original intent was to determine if statistically significant differences existed in learning styles of students in computer-based classes as compared with non-

computer-based classes. As no statistically significant differences surfaced, the group data were analyzed in the aggregate. Eight of the original 25 teachers agreed to participate, resulting in a student *n* of 212. The LSI was administered by the researchers to classes at the coordinated convenience of the teacher and researchers. Once all the inventories were administered, a learning profile and typology was determined for students.

Instrumentation

The *Canfield Learning Styles Inventory* (LSI) (Canfield, 1992) was selected for two reasons: (1) because of its ability to allow learners "to describe what features of their educational experiences they most prefer" (Canfield, p. 1) and (2) because the original study replicated Ladd's (1995) research which used the *Canfield Learning and Instructional Styles Inventories*. "The term 'learning style' refers to the affective component of educational experience, which motivates a student to choose, attend to, and perform well in a course . . ." (Canfield, p. 1).

This inventory also assesses the individual's learning preferences with regard to conditions for learning, areas of interest, modes of learning, and expectation for course grades. There are a total of 30 items on the LSI which each participant is asked to rank from "Most Preferred" (ranked 1) to "Least Preferred" (ranked 4). The raw scores per item may range from 6 to 24, with a lower number indicating a higher preference. The split-half reliability for the LSI ranges from .96 to .99 first half versus second half, and .96 to .99 on odd versus even numbered items. It is important to understand the LSI is not a test; there are no right or wrong answers. Its purpose is to describe a student's preferred learning style.

Because the LSI is not a test in the usual sense of having right or wrong answers, testing the validity of the LSI is a more involved procedure. Since the early 1980s "a number of researchers have reported evidence of (a) the power of the LSI to discriminate meaningful group differences in learning style preference, and (b) the value of matching instructional methods to characteristic individual student preferences" (Canfield, 1992, p. 38). Three studies (Pettigrew & Heikkinen, 1985; Robertson, 1978; and Irby, 1977) reported that, indeed, learning and instructional style congruence does result in improved achievement and greater satisfaction with the overall learning experience.

A Student Demographic Data sheet was also used to determine gender, grade in school, and diploma sought (academic or career/technical or both).

Findings

Two hundred twelve students participated in this study. Boys comprised 60.7% (*n*=128), and girls comprised 39.3% (*n*=83) of the study participants. One person chose not to respond to this question. They were relatively evenly divided between grades 9 (23.7%), 10 (23.7%), 11 (19.9%), and 12 (32.7%). The students came from rural (*n*=110, 51.9%), suburban (*n*=71, 33.4%),

and urban settings ($n=31$, 14.6%). One hundred (47.4%) of the students sought the academic diploma, 66 (31.3%) sought the career/technical diploma, 39 (18.5%) sought both diplomas, and 6 (2.8%) chose not to respond to the question.

The first step in making meaning of the student scores on the LSI was to determine rankings in the four categories: Conditions for Learning, Area of Interest, Mode of Learning, and Expectation for Course Grade. In interpreting this data it is important to remember the forced-choice format of the LSI where a high ranking of one scale requires a low ranking for remaining scales.

In the first category, Conditions for Learning which refers to "the dynamics of the situation in which learning occurs" (Canfield, 1992, p. 19), these students preferred **Instructor** ($m = 12.63$). This indicates a preference for a learning situation where the relationship between instructor and learner is warm and personal. These students prefer a less formal relationship and value non-job/class-related conversation. The least preferred scale in this category was **Competition** ($m = 17.53$), indicating these students prefer not having their work and performance compared with fellow classmates. These students also would not like being called on in class to answer a question.

The second category, Area of Interest, includes the subject matter of the course. The students in this study preferred **People** ($m = 13.63$). This scale describes a learner who prefers to work with others. People with this preference focus more on the people side of a job rather than the task side. However, it is important to understand that simply because this implies a preference for working with people it is not an indicator of an ability or skill to do so. The least preferred scale in this category was **Numeric** ($m = 16.31$). The students in the present study apparently do not prefer learning activities involving numbers and their manipulation.

The third category, Mode of Learning, "refers to the basic sensory and cognitive modality in which new information may be acquired" (Canfield, 1992, p. 24). These students preferred **Direct Experience** ($m = 12.79$), indicating a clear preference for hands-on activities. Contextualizing activities for these students brings real meaning to learning. Activities might include laboratory work, equipment use, or field experiences/internships. The least preferred scale was **Reading** ($m = 18.78$), clearly the opposite of Direct Experience, indicating a preference for learning via reading and textbook assignments.

The fourth category, Expectation for Course Grade, is a representation of the grade the student expects to earn in the particular learning situation. The clear preference for these students was a grade of "B" ($m = 10.48$), with a least preference for a grade of "D" ($m = 21.73$).

Once the scores for the scales have been computed, they are plotted on a profile form from which T-scores are determined which are used to develop the learner typology. The typology

consists of the following nine preferences: social/applied, social, social/conceptual, applied, neutral, conceptual, independent/applied, independent, and independent/conceptual. The "independent" preference was indicated by 38 (18%) of the students, closely followed by "applied" ($n = 32$, 15%) and "independent/applied" ($n = 28$, 13%). The least preferred types were "social" and "independent/conceptual," both with 13 students each (6% each). These students prefer to work alone, making progress toward their own goals, and on activities grounded in real-work contexts. Of the eight participating teachers, three (37.5%) preferred the "social" type; none preferred the "applied" or "independent." On the typology matrix, the "social" preference is the farthest away from the "independent" preference. The *Canfield Learning Styles Inventory* manual states the "social" choice "prefers extensive opportunities to interact with peers and instructors; has no strong preference for either applied or conceptual approaches; instruction involving small groups and teamwork will create the closest match" (1992, p. 14).

Conclusions and Discussion

Clearly these high school business education students prefer personalized learning where the instructor is well acquainted with the whole student, where the student is actively involved with others, and where the student is participating in the learning activities. They also have good expectations of the grade they will earn in the class in which they are enrolled. Conversely, these students prefer not to have their work compared with others publicly, do not favor learning activities involving mathematics, and prefer not to have to read as a primary means of learning.

A stereotypical evaluation might say this is a perfect description of the classic career and technical education student, more brawn than brain. However, more students were working on the academic diploma ($n = 100$, 47.4%) alone and on **both** the academic and career/technical diploma ($n = 39$, 18.5%) than the career/technical diploma alone ($n = 66$, 31.3%). It may, however, be reflective of other issues. One such issue is the forced-choice nature of the survey instrument: a high ranking of one item requires a low ranking of another item. Evidence of this surfaces in the mode of instruction category with the students preferring direct experience which is directly opposite of reading. It may also be reflective of a society that has evolved into a "point and click" mentality. In many situations reading is no longer a *required* activity; we frequently can point to an icon and get what we want. Servers in fast-food restaurants have no need to understand menu items or to know how to count change back—just push the button with the right picture and the cash register does the rest.

Aggregate scores plotted on the typology show the majority of these students ($n = 98$) cluster around applied and independent learning preferences, with least preference for a social learning environment. This provides the most evidence that these teachers do not teach the way their students prefer to learn. What causes this to be so? A number of questions emerge: Have

students not been required to read? Have students not been required to work in groups, thereby developing both teamwork and social skills? Has the pressure for individual success—the “me”—totally overcome the importance for group success—the “we”? Have teachers become one-course servers—learn my way or struggle and probably not learn your way?

A look at four general principles of learning discussed in the “Learning About Learning” video produced by the Association for Supervision and Curriculum Development (ASCD) (1995) may provide insight. The contributors to this video, Gaea Leinhardt, Lauren Resnic, and David Perkins, propose the following:

- New learning is shaped by the learner’s prior knowledge.
- Much learning occurs through **social interaction**.
- Learning is closely tied to **particular situations**.
- Successful learning involves the use of **numerous strategies**.

It might be folly to question any of these; however, how many teachers see the value and eagerly embrace these principles and their concomitant ramifications? Again questions arise: How do I know my students’ prior knowledge? How do I know if my students are talking that they’re really on task and not just visiting or, worse yet, cheating? There are a million business situations where what my students learn can be applied—how do I tied what they learn to *particular situations*? And how many different ways do you want me to teach—there are only so many minutes in a class period?

In fact, suggested instructional strategies in the manual for the *Canfield Learning Styles Inventory* (Canfield, 1992) by typology reflect several of the aforementioned principles of learning. For the three most prevalent student typologies (applied, independent/applied, and independent) prior knowledge, contextualized learning, and numerous strategies are clearly evident. For example, the applied typology might include practicum with supervision, problem-solving exercises, field observations, and/or mechanical simulations. The independent/applied typology might include problem finding/solving, field experiments, model building. And the independent typology might include analysis of procedures or techniques and/or journaling.

What specifically does this mean for secondary business education teachers? Two responses appear appropriate. First, secondary business education teachers need to determine their instructional preferences and their students’ learning preferences. Second, efforts need to be made to incorporate a variety of instructional strategies as appropriate to both meet student needs and instructional goals. As an example, the *Canfield Learning Styles Inventory* (Canfield, 1992) manual provides several matrices which match mode of learning preferences with conditions for learning preferences. In conditions for learning the students in the study preferred *instructor* and exhibited a prefer-

ence for *direct experience* in mode of learning. The manual suggests laboratory/field experiments, visits, supervised practice, and coaching by instructor as appropriate instructional techniques. Actual courses and activities in the business education classroom might include cooperative business education classes, computer classes, youth apprenticeship and other school-to-work opportunities.

What on the surface seems so simple, to match the learner’s style with an appropriate instructional strategy, is not simple at all, primarily because an individual’s learning style is not typically singular but rather plural! Dixon (1985) stated “Preference does not imply that these ways are the only or perhaps even the best ways for the individual to learn a given subject matter. They are, however, the styles with which the individual has the greatest experience and therefore represent the individual’s learning strengths” (p. 16). She suggested too, perhaps the wrong question is being asked. Rather than inquiring about how learning style information can be used to improve instruction; perhaps one should inquire as to how learning style information can be used to improve learning. As it is within the instructor’s power to effect change in the classroom, Dixon suggested these five responsibilities: “(a) helping individuals understand themselves as learners, (b) encouraging individuals to expand their learning styles, (c) using a variety of instructional approaches, (d) creating an environment in which diversity can thrive, and (e) creating a climate in which collaboration exists” (p. 16).

Recommendations

Based on the related literature and data gathered, the following are recommended for practice and research:

1. Business education teachers should acquaint themselves with current literature regarding instructional styles and their effect on student learning/achievement.
2. Business education teachers should help their students understand themselves as learners in the classroom.
3. Business education teachers should attempt to determine their instructional preferences and their students’ learning preferences.
4. Business education teachers should incorporate a variety of instructional strategies, which include contextualized, applied learning opportunities.
5. Teacher preparation programs should include learning theory and learning style preference research in instructional strategies classes.
6. The present study should be replicated with a larger, more diverse student population.

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Chinese Communication Styles and Techniques in International Business Negotiations

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Abstract

This study examines the Chinese communication styles and techniques in international business negotiations by analyzing Chinese negotiation textbooks and cases used in their training programs. The findings indicate that Chinese negotiators are trained to use a wide range of communication styles and techniques, which can be classified into a number of continua starting from the relationship-based win-win negotiations moving towards the pure competition-based confrontations. The Chinese use the win-win approach far more frequently than the other approaches. However, when they find their counterparts taking advantage of their win-win approach, they would make immediate changes and confront with the counterparts.

Introduction

Lured by the largest emerging market of more than one billion eager consumers, thousands of foreign companies have rushed into China to set up joint ventures, sales offices, and factories. For most, as Kahn (1999) indicates, success has not come quickly. Numerous foreign companies have experienced problems caused by poor cross-cultural communication, such as misunderstandings, long delays, deadlocks, and unexpected sudden changes, when negotiating business ventures with their counterparts in China (Banathan, 1994; Clifford, Roberts & Engardio, 1997; Kraar, 1999; Leung & Yeung, 1995; Mann, 1989; Silver, 1998; Zirin, 1997). Apparently, understanding cross-cultural communication differences in business negotiations is of vital importance for developing successful negotiation strategies.

Unfortunately, previous studies have focused on the Chinese behaviors during negotiations and the negotiation outcomes to figure out the Chinese communication styles and techniques and to provide reactive suggestions (see, for example, Leung & Yeung, 1995; Pye, 1982; Stewart & Keown, 1989). No research has been found to investigate proactively how Chinese negotiators are trained to use various communication styles and techniques when negotiating business ventures with their foreign counterparts. This research gap indicates a need for a study to explore a wide range of communication styles and techniques that Chinese negotiators are trained to use in international business negotiations.

Research Questions

In this study, six research questions were addressed to identify the communication styles and techniques that Chinese negotiators are trained to use at the following negotiation stages: (a) creating a negotiation atmosphere, (b) communicating positions, (c) making offer and counteroffer, (d) negotiating techniques, (e) breaking deadlocks, and (f) closing deals.

Purpose of the Study

The purpose of this study was to provide empirical findings that can serve as a theoretical basis for recommending proactive strategies that Western business managers need when negotiating business ventures in China. In addition, the information would be important to Western business educators and trainers in updating curricula and preparing business students for the global marketplace.

Methodology

To explore a wide range of communication styles and techniques that Chinese negotiators are trained to use in international business negotiations, a content analysis was conducted to examine the textbooks including case-study materials used in China's international business negotiation training programs at universities and corporate training centers. The text selection concentrated on the business negotiation books with real-life cases written by Chinese authors and published in the People's Republic of China between 1988 and 1999. The major Chinese publishers of business negotiation books were contacted for lists of business negotiation books published in China during that period. Fourteen texts with real-life cases were identified as widely adopted training materials for international business negotiation; therefore, they were used for the content analysis.

The content categories of the analysis were established on the basis of the following six negotiation stages addressed in the research questions for identifying and classifying data: (a) creating a negotiation atmosphere, (b) communicating positions, (c) making offer and counteroffer, (d) negotiating techniques, (e) breaking deadlocks, and (f) closing deals.

To supplement the content-analysis results, ethnographic interviews were conducted in Beijing, Shanghai, and Guangzhou, the three leading commercial, financial, and industrial centers

of China. Interviews were conducted with nine educators and trainers who had been or still were negotiators and taught international business negotiation courses or workshops in the last 10 years at universities or corporate training centers in China. Open-ended questions were asked based on the research questions of this study as the beginning questions; then follow-up questions were raised on how they teach and conduct international business negotiations. Interviewee responses to the questions were recorded. Finally, the data from the content analysis and ethnographic interviews were analyzed to identify the answers to the research questions of the study.

Findings

The findings of this study are reported in the sequence of the negotiation stages addressed in the research questions: (a) creating a negotiation atmosphere, (b) communicating positions, (c) making offer and counteroffer, (d) bargaining, (e) resolving conflicts, and (f) closing deals.

Creating Negotiation Atmosphere

Five international business negotiation atmospheres were identified in the texts, which could be arrayed along a continuum from friendly to formal, indifferent, adversarial, and to hostile. The most frequently taught in the texts and used in the real-life cases was "how to create and maintain a friendly atmosphere for building a long-term cooperative relationship." The Chinese know that establishing a good relationship can help resolve conflicts and smooth the negotiation process. The methods of (a) having small talks about personal interests, hobbies, education, or travel experience; (b) reserving a hotel for your counterparts; receiving your counterparts at the airport; (c) having meetings and social hours in restaurants and clubs; (d) showing interest in your counterparts' cultures and languages; and (e) sending and receiving gifts appeared frequently in creating and maintaining a friendly negotiation atmosphere.

A far distant second was how to create and maintain a formal atmosphere when meeting with arrogant or unfriendly opponents. A Chinese traditional method was taught: "Yi li xiang dai," meaning "treat one person with due respect." However, a new, open-minded communication style was recommended: As long as a cooperative prospect exists between both sides, we should try to turn the formal, impersonal atmosphere into a friendly one. And arrogant or unfriendly people might change their attitude if we listen to them attentively, respond and comment with good understanding, wisdom, originality or uniqueness.

No teaching of how to create indifferent, adversarial, or hostile negotiation atmospheres was identified in the texts. The texts advised that negotiators should walk out of the negotiation if the counterparts are creating and maintaining indifferent, adversarial, or hostile atmospheres, because such atmospheres have already put a negotiation in jeopardy at its very beginning.

As the interviewees indicated, "We Chinese are used to doing business with friends; we could not comprehend how enemies could come together to do business."

Communicating Positions

When teaching how to communicate the position, messages occurred in a range from indirect to direct statements. The indirect, polite expressions that came into view most frequently in the text narratives and case examples are these: "May I suggest this timetable?" "We suggest mutual benefits and long-term cooperation be our basic principles. What do you think about it?" And "Would you please share your position and expectation with us?" Such indirect, polite suggestions were taught as China's principal negotiation positions in international business. In the China-U.S. Intellectual Property Agreement negotiation, for example, the Chinese clearly communicated the position by suggesting that, as long as both sides respect mutually and negotiate on an equal basis, any trade conflicts between the two nations could be resolved. As suggested, China and U.S. finally resolved the conflicts and signed the agreement on February 26, 1995, in Beijing, China, after spending 20 months on nine rounds of negotiations. The China-U.S. WTO negotiations also evidenced the importance of the Chinese-suggested position. After 13 years of on-and-off negotiations, both sides finally came to a win-win outcome and signed the agreement on China's entry into World Trade Organization on November 15, 1999, in Beijing.

By contrast, direct, firm statements were far less frequently identified. Such statements as "Our side firmly declare that your side breached the contract and sold us defective products." "Your side must be responsible for the misconduct." "Our side seriously claim to be compensated..." appeared mainly in the claim negotiations. As the interviewees stated, "The claim negotiations are the consequences of the win-lose negotiations." "Those who win the deal by cheating, deceiving, or wrong doing are bound to suffer from their own unscrupulous conduct." "Claim negotiations are not only time-consuming, costly, and tiresome, but also hurting both sides' feelings and corporate images." "We believe cooperation is far more profitable than competition."

Making Offer and Counteroffer

Concerning who makes first offer, the texts discussed both advantages and disadvantages of initiating the first offer and provided advice. The following statements frequently emerged in the texts: (a) In international trade business, usually sellers make the first offer. (b) The decision should be based on how well you know the market, your counterpart, and yourself. (c) The first offer sets the ceiling of the price range; thus, if you are uncertain of your market and counterparts, suggest they make the first offer. (d) As a seller, your first offer should be higher than the price you want to get; as a buyer, your first offer should be lower than that you want to pay for. And (e) no matter whether you are seller or buyer, your first offer should be reasonable; otherwise, it would hurt the other side's feeling and damage the atmosphere.

As the ranking order shows, following the international general practice was most frequently recommended to Chinese negotiators. Ranked second was to suggest the other side make the first offer. To initiate the first offer was least frequently recommended. In the real-life negotiation cases, most Chinese offers were identified as reasonable to both sides. Some Chinese offers were Western-style package offers, which had enough room for negotiation and concession. Only two were identified as Japanese-style piecemeal offers, in which the basic price was quite low to attract the buyer, but profitable extras were added on when the buyer asked for them.

Regarding how to make counteroffer and counter-counteroffer, the texts addressed a series of techniques ranging from accepting a reasonable offer to requesting or giving justification, making a counteroffer lower than their bottom line, and to rejecting their offer and asking to reconsider it. Among them, giving justification was most frequently recommended in the texts and the real-life cases, followed by requesting justification. Ranked as a distant third and fourth were making a counteroffer lower than their bottom line and rejecting their offer and asking them to reconsider it, respectively. The least suggested was accepting a reasonable offer without a counteroffer.

Two contrary types of messages also emerged in the texts. While the win-win advocates advised negotiators to give justification with enough evidence and persuasion, the cooperative egoists taught negotiators to answer every question fluently, but not to tell what was not asked for. When asked to comment on these contrary styles, the interviewees stated, When making your offer or counteroffer, be sure they are reasonable, or negotiable. Factual evidence and persuasion skills are all very important for you to justify your offer or counteroffer. In order to make a reasonable offer or counteroffer, accurate information of your market and counterpart is of vital importance. Be sure to avoid misunderstandings caused by misinterpretation or cultural differences.

Negotiating Techniques

When teaching how to negotiate, the texts addressed a large variety of communication styles and techniques, which could be arrayed along a continuum from win-win to compromise to indirect confrontation and to direct confrontation. At the win-win end, the techniques for first getting an agreement on the principles emerged most frequently in the texts and the real-life cases. Messages embedded in the principles were to achieve mutual understanding, mutual trusting, mutual benefits, and long-term cooperation. The belief behind such communication was once the parties agreed on these principles, other issues would be easy to handle. The relationship-based win-win approach was most frequently recommended for Chinese negotiators to use in international business negotiations. However, Chinese negotiators were also taught to probe their opponents' positions and techniques not only in words but also in deeds, then act accordingly. The most frequently identified were warnings and advice such

as "When you find your opponents taking advantage of your win-win approach, you need to change your strategy immediately." "When you advocate the win-win philosophy and your opponents do not reciprocate, they would gain the most and you would get the least or even lose." And "remember Sun Tzu's instruction that by knowing yourself and knowing your opponents, you will have one hundred battles with one hundred victories."

The teaching of how to communicate to make the first concession as a symbol for a long-term relationship was identified as a distant second recommendation to Chinese negotiators. The key points embedded in teaching this communication style were such messages as (a) to be sure to clearly state that this concession is your willingness to establishing a long-term relationship and achieving mutual benefit... and (b) to be sure this concession would make them satisfied with your cooperative attitude.... Following this style were to make a concession as willingness for compromise and to make mutual concessions.

Another two techniques emerged in the middle of the continuum were to show your counterpart the maximum you can pay and to show your counterpart the market competition. Embedded in the techniques were these messages: If, after rounds of negotiations, their price is still higher than you can afford, just tell them the total money you have for the deal.... and If they cannot lower their price, you should sincerely tell them that the companies from other countries offered a lower price.... As the real-life cases illustrated, such sincere statements can make the foreign counterparts more flexible if they are positioned with long-term strategies. For example, the executives of General Motors, Mitsui, Nokia, and Pepsico revealed three key factors of their successful investments in China: a long-term strategy, a good partnership, and being flexible. These executives summarized that China is a unique market, in which investors should not copy the Western business development strategies nor look for quarterly returns rather than long-term profits.

The techniques for indirect and direct confrontations were often identified at different stages of the win-lose negotiations; most of them emerged in the claim negotiations. Chinese negotiators were taught to use indirect confrontation at the beginning of a claim negotiation as a signal of preserving the friendship between the two sides. Statements such as reporting your inspection results of the newly arrived goods, reporting the status of the defective products with end-users' feedback on how they used the products and what problems happened, and not mentioning the dollar amount of the claim at the first step were frequently advised to use in indirect confrontations. If the indirect confrontation does not work, a direct confrontation should follow. Chinese negotiators were taught to use firm, clear statements to point out the defects of the products, the problems caused by the defective products, and the counterpart's responsibility in dollar amount. Evidence collected from the investigation should be provided at the negotiation table.

Breaking a Deadlock

Conflict and deadlock resolution was a major part of the negotiation training. The most frequently taught and used techniques were (a) to create more value for both sides, (b) to improve two-way communication, and (c) to lever price creatively with other aspects of the deal. As a case described, for instance, a foreign government offered a large six-year loan to a Chinese project. The total loan would be put in a designated bank and could only be spent on the project. To secure the completion of the project as scheduled, the Chinese loanee should pay the undertaking fee on the unused part of the loan every year, which means the fee in six years would eat quite a part of the loan. Therefore, the Chinese proposed to divide the loan into six portions based on the project schedule, and the loaner puts one portion each year in the bank with the undertaking fee calculated based on the unused annual portion only. Doing so, the loaner can better manage its funds and avoid having a big sum of money sleeping in the bank for years, at the same time the Chinese can lower the cost of the fee. Hearing this win-win proposal, the loaner agreed with the Chinese loanee, thereby saving the loanee several million U.S. dollars on the undertaking fee.

Similarly, in another case, a Chinese corporation negotiated a big project with its long-time partner, a multinational corporation. As the project was funded by a low-interest loan, during the price negotiation, the Chinese suggested to pay 20% of the project as the down payment rather than the traditional 5%-10%, which could save the foreign partner quite a lot on its bank loan. In return, the foreign partner would lower the price to a level the Chinese could accept. The foreign partner agreed on this win-win idea; therefore, both sides created more value for both sides.

Improving two-way communication was taught as a way to resolve conflicts and deadlocks caused by misunderstanding. For example, when a multinational corporation's CEO visited a well-known Chinese manufacturer in Shanghai for exploring the possibility of a joint venture, the Chinese general manager was very glad and made a brief introduction about his company. The Chinese interpreter translated word for word, "Our company is China's second-class enterprise...." Hearing this, the foreign CEO's excitement and interest immediately disappeared. On his way back, he complained to his friend, a Chinese official, "How could we cooperate with a second-class enterprise?" "Actually," explained his friend, "China's second-class enterprise refers to its local state-owned major enterprise." Similarly, the Chinese "yes," like the Japanese "yes," could often be misunderstood by Americans and British as their English "yes," but the Chinese often mean the opposite or "I am listening."

On the other hand, English expressions such as "I couldn't agree more," "Our company couldn't be better," "Our product couldn't be more competitive," and "We could never be too nice to our customers," could often be misunderstood by the Chinese as "I don't agree at all," "Our company cannot be better," "Our product are not competitive any more," and "We will not be very nice

to our customers." These expressions often put negotiation into deadlock without knowing why the other side suddenly changed the attitude and wanted to quit. To improve two-way communication, the texts taught negotiators to verify their understanding by frequent summaries during the negotiation. The following expressions were advised: "You said.... As I understand, you mean...." "Please let me see if I am clear about what you said. Do you mean ...?" "May I sum up our discussion as follows...?"

Closing Deals

Regarding the deal-closing techniques, the texts taught negotiators to use both Chinese and English as the official contract languages. If a contract must use a foreign language other than English, then the Chinese version should govern. Concerning the contract governing law, although all the contracts of technology transfers and foreign joint ventures in China must be governed by China's laws and regulations, reasonable flexibility is possible. As one example illustrated, a large American corporation came to China in the mid-1980s for a joint venture. After many rounds of detailed negotiations, the two sides began drafting the contract and conflicted on the governing law. While the Americans insisted on using their home state law as the governing law, the Chinese insisted that the contract be governed by China's law because the venture would be in China. Facing the deadlock, the time and money spent, and the possible project failure, the American project manager sighed in despair, "It makes me crazy. I will lose my job." To break the deadlock, the Chinese consulted an international business law expert and talked with the American manager and learned that the American company did so in order to protect their intellectual property (IP) as they were not certain of China's IP protection regime. Knowing the cause of the deadlock, the Chinese explained to their counterpart's legal department about China's continuous improvement in IP protection, and proposed that the contract governing law still be China's law but the IP protection clause be governed by New York state law. The American side accepted the proposal with high appreciation and the joint venture was finally established and running well. In 1992, the American partner reinvested \$20 million US dollars in this joint venture for expansion. In his 1993 visit to China, the formerly despairing American project manager commented that the Chinese innovative resolution not only enhanced both sides' cooperation, but also led him to a significant promotion.

Summary and Discussion

First, as the findings reveal, a large variety of communication styles and techniques are taught in China for conducting international business negotiations. These styles and techniques can be summarized into the following patterns of continua: (a) from creating friendly atmosphere to creating formal, to indifferent to adversarial, and to hostile atmospheres; (b) from making indirect, polite suggestions to making direct, firm statements; (c) from negotiating general principles to negotiating specific details; (d) from concession for a long-term relationship to concession for a compromise to indirect confrontation, and to direct

confrontation; and (e) from innovative problem solving for creating more value for both sides to suggesting a recess, to friendly walk out, to mediation, and to arbitration. As can be seen, the communications at the starting points of the continuums belong to the relationship-based win-win philosophy and are used by the Chinese far more frequently than those at the opposite ends, which represent the pure competition or zero-sum philosophy.

As the relationship-based win-win philosophy is valued highly in China, Chinese negotiators are trained to spend much more time than Western counterparts do in creating a friendly atmosphere for building a cooperative relationship (named "guanxi" in Chinese) and in communicating positions. Usually, negotiations do not go forward until the Chinese are satisfied that both sides are positioned on the equal basis with mutual respect, and a harmonious working relationship can be established for future mutual benefits. However, Western business managers may misunderstand their Chinese counterparts as being slow, spending too much time on small talks and non-business related activities, and having long delays in business negotiations (Banathan, 1994; Clifford, Roberts & Engardio, 1997; Leung & Yeung, 1995; Silver, 1998; Zirin, 1997).

Chinese negotiators are trained to start with the win-win approaches when creating a negotiation atmosphere, communicating a position, making offer and counteroffer, negotiating, breaking deadlocks, and closing deals, because they view negotiation primarily as an opportunity to build a long-term business relationship and create long-term mutual benefits. However, when Chinese negotiators find their counterparts taking advantage of their win-win approach, they would make immediate changes and confront with the counterparts. The Chinese frequent use of the relationship-based win-win approach indicates their deep belief that no matter how carefully negotiated a contract is, it cannot possibly anticipate all future uncertainties or problems; only with a well-established relationship, will both sides be able to deal with any future uncertainties and harvest win-win outcomes. By contrast, many Western managers believe business is business. They view negotiation primarily as an opportunity to accomplish a deal or to resolve an issue. Therefore, they tend to view negotiation process as the end when the agreement is reached and the contract is signed. Western managers could hardly understand why and how their Chinese counterparts could ask to re-negotiate the signed contract during its implementation (Kraar, 1999; Mann, 1989; Pye, 1982; Stewart & Keown, 1989).

Being innovative, being flexible, and improving two-way communication are taught as the key techniques to solve conflicts and deadlocks in international business negotiations. As the findings indicate, on the basis of equality, mutual respect, mutual benefits, and long-term cooperation, these techniques can help both sides create more value (e.g., paying 20% instead of 5% as the down payment for a lower price), avoid misunderstanding (e.g., verifying understanding with frequent summaries), and resolve the conflicts and deadlocks that are considered as unresolvable in the traditional way (e.g., the contract is governed by China's law, but one clause of it is by a foreign law).

Managerial and Pedagogical Implications

The findings of this study can help Western business negotiators better understand the Chinese communication styles and techniques used at different stages of an international business negotiation. With such a better understanding, they can reposition themselves and develop proactive strategies when negotiating business ventures in China. Western negotiators can also consider sharing the Chinese view that negotiation is a process for achieving a long-term cooperative relationship and mutual benefits rather than just a written contract.

The findings of the study also provide Western business educators and trainers with important information that they need to update their curricula. Teaching comparatively how the Chinese and the Westerners are trained to conduct international business negotiations would help students widen their world view, learn new thoughts, and prepare themselves better for the global marketplace.

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College Students' Use of Computer Technology and Its Relationship to Constructivist Learning

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Abstract

This study questioned whether students perceive the use of computer technology as affecting their abilities to construct meaning and enhance their ways of knowing and learning. Both quantitative and qualitative data were collected. The study found that students recognized the capability of computers to aid in their learning process, but commented on the faculty's lack of resources and infrequent use of computers in the classroom. Rather than a learning tool, students perceived computers as a performance tool providing them the capability to academically produce more quantity in a shorter period of time. Thus, students' computer use does not support constructivist learning.

Introduction

The use of computer technology has been touted as the hallmark of learning in today's Information Society. It has also been deemed the harbinger of the de-humanization of higher education. Regardless of the perspective, technology has made a significant impact on college and university campuses. This is no exception at one midwest university where the trustees approved a \$36-plus million investment in technology infrastructure upgrades to propel the university into the next century. The university's president stated that these investments are necessary to meet the university's desired goals of becoming a premier learning institution and providing a quality student experience.

In light of the need for colleges and universities to provide educational environments that meet the needs of a technologically-advanced society and in order for these institutions to maximize their investments in technology, an examination of the use of technology as a learning tool in the university environment becomes essential (Albright, 1995). Specifically, in order to assess the impact of current investments as well as plan for the future, institutions must identify how technological advances are applied in the university classroom, determine how learning is best supported by technology, and investigate how students use computer technology as a learning tool and perceive the effectiveness of the impact of technology on their learning environment. Using existing research as a basis for understanding learning theory and classroom use of computer technology, this study examined students' frequency of use of computer technology for both course-related work and for personal use in addition to students' preferred learning environments.

Purpose and Scope of the Study

This study examined students' perceived use of computer technology in the university environment. Specifically, the study addressed students' perceptions of their frequency of use of computer technology and its role in their learning process. For the purposes of this study, computer technology included the use of computers to facilitate the comprehension of course content, regardless of the academic discipline. Examples of computer technology included desktop applications such as word processing as well as a myriad of Internet-related applications for communication and information gathering purposes such as e-mail and the World Wide Web.

Research Questions

This study addressed the following research questions:

1. Do students perceive the use of computer technology as affecting their abilities to construct meaning and enhance their ways of knowing and learning?
2. Are there differences in students' perceived use of computer technology among demographic variables such as gender, full-time/part-time enrollment, class standing, race/ethnicity, and college affiliation?
3. Is there a relationship between the level of perceived frequency of personal use and the level of frequency of use for educational purposes?
4. Is there a relationship between students' preferred learning environments (traditional versus constructivist) and their frequency of use of computers?

5. Are there differences in students' preferred learning environments (traditional versus constructivist) among demographic variables such as gender, full-time/part-time enrollment, class standing, race/ethnicity, and college affiliation?

Review of Literature

Although the use of educational computer technology has increased over the years (Green, 1996), the traditional instructional methods in the higher education classroom have not changed much, if at all. This dichotomy raises questions regarding how campus computing is being put to use and how it affects student learning. To date, it seems the greatest percentage of technology use in courses typically has been manifested in the forms of e-mail communication, computer laboratory classrooms, and presentation handouts. Green defined these technologies as "low-tech" (p. 26). Many of the computer technologies, such as presentation applications, multi-media presentations, and on-line tutorials, are simply automated methods of traditional concepts supported by traditional teaching/learning methodologies and pedagogies.

A limited amount of research (Brown, 1994; Elder, 1997; Jawad, 1998; McMahon, 1998) has been conducted to answer these questions. For example, in Brown's (1994) study, the use of educational technology was used to intellectually challenge students. Two groups of students engaged in a computer activity to learn a particular concept. One group of students used a predetermined sequence of hypertext documents to "discover" knowledge; the treatment group was able to individually manipulate the various hypertext links to determine their own path of learning. Brown concluded that students in the treatment group spent more time considering the next logical step in their discovery of knowledge and were also 20 percent more likely to recall the information after a one-week latency period. Brown's study supports the premise that the use of the computer technology does affect students' abilities to construct meaning and enhance their ways of knowing and learning.

Learning Environments

The study of students' perceptions of the use of computer technology in higher education also requires an analysis of learning environments. Since its inception, higher education has embraced a traditional approach to instructional methodologies. This perspective continues to flourish today despite dramatic societal changes that reflect the impact of the Information (Communication) Age, post-modernistic perspectives, and naturalistic inquiry. After describing traditional models of learning, the foundations of constructivist learning theory are presented including philosophical origins, various forms, interdependent attributes, and assessment and evaluative assumptions.

Traditional Learning

The traditional models of teaching and learning are based on the assumption that knowledge is transmitted from the teacher to the student. In this respect, knowledge is external, objective, and fixed. Reality is external to the knower, and meaning is reflected by the external world. Learning, then, becomes a reflection of what the teacher already knows. In this environment, learning occurs within well-structured, product-oriented, retention-retrieval systems — the teacher creates the structure, defines the product, and assesses the students' retention. The goal of traditional instruction is to simplify knowledge into discrete units or lessons so it can be presented in a logical sequence from basic to advanced concepts. In this respect, instruction occurs in a controlled, individual, and competitive environment supported by lectures (structure), assignments (products), and examinations (retention-retrieval) (Jonassen, Peck, & Wilson, 1999).

Using the traditional learning paradigm, technology in the classroom typically becomes a surrogate teacher. For example, a national study conducted in 1983 found that the most common use of microcomputers in the classroom was for drill-and-practice exercises (Becker, 1985). This tutorial approach to learning used the computer to replace textbooks and flash cards with programs to drill students on rote skills such as spelling and counting. Although these may be situations where this is an effective use of computers for instruction, if the computer is nothing more than a "talking head," all it has done has been to replace the teacher and dehumanize the learning process (Hurst, 1994). The use of productivity tools and multi-media have made classroom computing more interesting, but "their roles in education have been naturally conceived as teachers and sources of knowledge rather than tools for learning" (Jonassen et al., 1999, p. 12). Thus traditional approaches to instructional design do not take full advantage of the capabilities of computer technology.

Constructivist Theory

Constructivist theory is defined "not as a theory about teaching but more as a theory about knowledge and learning" (Allen, Carmona, Calvin, & Rowe, 1999, p. 1). Learning requires thinking, and thinking is engaged by activity. The constructivist approach to learning assumes that people actively create their own meanings of knowledge based on their personal interactions and experiences (Fulton, 1998). Constructivism is founded on the "belief that knowledge/meaning/understanding do not exist outside of meaningful, intentional activity. People naturally construct meaning" (Jonassen, et al., 1999, p. iii). Humans naturally learn by doing. For example, children learn that a stove is hot by physically touching the stove. Yet constructivist theory involves more than simple activity. More specifically, "constructivism suggests that learners are particularly likely to create new ideas when they are actively engaged in making external artifacts that

they can reflect upon and share with others" (The Role of the Learner in Constructivist Theory, 1999, p. 1). The elements of creating ideas, producing information, and communicating it are all supported by computer technology. However, it is important to consider that constructivism is not a new philosophy; it was conceived within the studies of cognitive psychology, philosophy, and human development.

As it is applied today, the key concept of constructivist learning is that understanding cannot be taught or *given* from the teacher to the student; it belongs and is *owned* by the student. Similarly, understanding cannot be gleaned *from* technology, but by interacting *with* technology. Therefore, if more emphasis of learning is placed on the process and rather than the product, the use of technology in the learning environment should focus on its use as a knowledge construction *tool*. "Teaching is primarily about process because it is only 'in process' that its knowledge and skill are made manifest — in the process of discovery experienced by students and, in those precious moments, by teachers as well" (Batson & Bass, 1996, p. 47).

Methodology

The data collected to answer the research questions posed in this study were gathered using both a quantitative survey instrument as well as focus group interview research methodologies. Outlined below is a description of the subjects and instrumentation as well as a discussion of the methods that were used for sampling, collecting and analyzing data, and reporting and the criteria for judging the quality of the process and final product of the study.

Subjects

The population for the study was the student body of the main campus of a midwest state university as enrolled at the beginning of the Fall 1999 semester. The sample for the study was determined by first identifying the percentages of students enrolled in each of the six colleges on the main campus. Using these percentages as a foundation for data gathering ensured a proportional representation of the entire student body at large and served as a basis for stratifying the sample. A target total of 1,000 students or roughly 5 percent of the entire population was set as the sample size. Although general research guidelines suggest that the sample should represent 20 percent of the population, the most appropriate "sample size depends on a number factors such as . . . the size of the population" (Gay, 1997, p. 124). Twenty percent of the student population would have required 3,800 survey participants — an excessive and expensive sample size. Gay noted that larger populations require smaller samples and specified a sample size of 377 (1.89 percent) for a population of 20,000. Thus, the targeted sample size of 1,000 reflecting 5 percent in this study was safely representative of the student body population at large.

Instrumentation

The survey instrument used in this study was a self-developed questionnaire based on the literature review and considerations of several related surveys. The instrument was designed to produce demographic information from the students as well as specific quantitative data to address the research questions. To ensure content validity, the survey was reviewed by content experts in the areas of both educational technology and constructivist learning theory.

Two pilot tests of the questionnaire were conducted in late September 1999 to assess the reliability of the instrument. To ensure the quality of the instrument, the students involved in the pilot test participated in semi-structured group interviews in order to discern their interpretation of the survey items. Additional reliability testing was based on item analysis using Cronbach's alpha reliability coefficient to determine how well the questions within the Likert-scale items related to each other.

Data Collection Procedures

The survey was administered to selected classes during the Fall 1999 semester. A random personnel list was used to contact faculty; permission was requested to visit classes. Class visits were continued until a stratified sample that represented college enrollments was obtained. An insert with the survey instrument sought volunteers for the focus groups. Focus group participants were selected based on their demographics and learning environment preferences. Interview protocols were established based on the statistical analysis of the survey instrument. Transcripts were reviewed to identify patterns to enhance the quantitative findings of the study. A peer debriefer was used to maintain the reliability and credibility of the identified themes and categorizations.

Data Analysis

A total of 1,092 survey instruments were collected. The analyses of the demographic data collected via the survey instrument indicate that the sample was representative of the larger population. Descriptive statistics including frequencies and percentages of responses were used to analyze the survey data. Cramer's V and Phi correlation coefficients were applied to determine the strengths of the relationships between students' perceived frequency of use of computer technology and the variables of gender, enrollment status, and college affiliation. This measure was also used to determine relationships among students' preferred learning environments and their gender, enrollment status, and college affiliation. This statistic was chosen as the most appropriate measure of association because the independent variables were represented as nominal data. A total composite score for the Likert-scale items indicated students' preferred learning environments on a continuum from traditional to constructivist.

Spearman correlation coefficients were used to examine the relationships between students' perceptions of their frequency of use of computer technology and class standing. The Spearman correlation coefficient was used due to the ordinal nature of this data.

Determination of whether there was a significant difference between groups based on gender, enrollment status, class standing, or college affiliation with regard to students' perceived use of computer technology were made through the application Kruskal-Wallis one-way analysis of variance (a non-parametric measure) due to the ordinal nature of this data and the level of measurement. An alpha level (level of significance) of .01 was used throughout the analysis. The .01 level was used (rather than .05) due to the large sample size (1,092 survey responses) and to increase the credibility of the findings.

Frequency of Computer Use

All frequencies were measured using the Phi coefficient which is appropriate for determining relationships among both nominal and ordinal variables; the f value ranges from 0 to 1. In regard to personal use of computers, most students (68.2 %) reported using email on a daily basis; this was the largest percentage of all computer use for personal purposes. The relationship between gender and personal use of the Web was significant ($f = .304, p < .01$) indicating that males use the Web (43 % every day) more often than females (20 %). The relationship between gender and personal use of computer applications was also significant ($f = .132, p < .01$) again implying greater frequency of male use. When comparing personal use to class use, students most frequently reported a 50/50 percentage of use, but a pattern of slightly increased class use was indicated when students responded to specific computer use questions.

Other significant relationships implied that full-time students are more likely to use computer applications ($f = .135, p < .01$) and the Web ($f = .119, p < .01$) for class use. Interestingly, 78 percent of first-year students reported using email for personal purposes on a daily basis; this relationship was significant ($f = .246, p < .01$). First-year students also reported significantly greater use of computer applications for class use ($f = .283, p < .01$). College enrollment was related to use of email for personal purposes on a daily basis ($f = .233, p < .01$) with students in the College of Musical Arts reporting the highest percentage of use (92 %). When it came to use of email for class work on a weekly basis, students in the colleges of Technology (55 %) and Business Administration (45 %) reported greatest frequency of use ($f = .202, p < .01$). Students in these two colleges also used the Web for personal purposes most often ($f = .234, p < .01$). Graduate students are more likely to use the Web for class purposes than undergraduates ($f = .269, p < .01$).

Preferred Learning Environments

The Likert-scale items were totaled to determine students' preferred learning environments. A low score indicated a preference for traditional learning; a high score reflected preference for constructivist learning. Several significant relationships were found among the individual Likert-scale items and the demographic variables. However, only the significant relationships with students' overall Likert-scale scores are presented here. A significant correlation ($f = .479, p < .01$) was found between students' scores and class standing. It appears that as class standing increases from the first-year to doctoral level, the percentages of students preferring constructivist learning environments also increases. Students in the College of Education and Human Development had the largest percentage of constructivist responses while students who had not yet declared a major (Undecided) had the lowest percentage ($f = .469, p < .01$).

Conclusions

Research Question 1

Do students perceive the use of computer technology as affecting their abilities to construct meaning and enhance their ways of knowing and learning? Although the computer has the capability to be used as an effective learning tool, students often perceive the use of the computer as negatively affecting the learning process. The greatest benefit of the computer to the students' academic activities is its ability to increase their overall productivity.

Research Question 2

Are there differences in students' perceived use of computer technology among demographic variables such as gender, full-time/part-time enrollment, class standing, race/ethnicity, and college affiliation? It is concluded that males use computers more often than females due to a variety of possible reasons. Males may be more likely to be enrolled in technical and computer-related majors thus affecting their exposure and daily access to computers. This increased academic exposure may affect males' potential to use the computer for entertainment purposes. Although exposure and access may play a determining factor in students' frequency of use of computer technology, the application or specific reason for use is a more important factor. The data support the conclusion that full-time students are more likely to use computers for class-related purposes, and part-time students are more likely to use computers for personal/employment-related purposes. Freshmen and doctoral students are more likely than other students to use email to maintain communication ties with friends and family. Additionally, course requirements will affect students' use of computer applications for class-related purposes, and general education courses seem to require a

significant amount of writing (word processing). Based on the findings, it is concluded that students enrolled in the College of Education and Human Development are at somewhat of a technological disadvantage compared to students in other colleges. The data indicate that Education students are less likely to use email and the Web for personal or class-related purposes than any other students on campus.

Research Question 3

Is there a relationship between the level of perceived frequency of personal use and the level of frequency of use for educational purposes? Although most students find email and Web applications useful for personal communication and entertainment, they have not found them applicable or necessary to their academic pursuits. It was concluded that, in general, faculty do not integrate or require Internet applications as learning tools within the curriculum. Additionally, students who use the Web frequently (regardless of whether it is for personal or class-related purposes) also use computer applications frequently.

Research Question 4

Is there a relationship between students' preferred learning environments (traditional versus constructivist) and their frequency of use of computers? Unlike the researcher's hypothesis that constructivist learners would be found to use computer technology as a learning tool more frequently than traditional learners, the statistical results indicated negative correlations between computer use and preference for constructivist learning environments. Addressing this disparity between the related research and the findings of this study, the researcher concluded that the obstacles to the use of technology as a learning tool are keeping constructivist faculty from incorporating computers into their student-based classrooms. These obstacles include a lack of resources, both with regard to classroom access as well as faculty's exposure to technology and released time to learn how to effectively integrate educational technology.

Research Question 5

Are there differences in students' preferred learning environments (traditional versus constructivist) among demographic variables such as gender, full-time/part-time enrollment, class standing, and college affiliation? When comparing students' composite Likert-scale scores, there were no significant relationships with either gender or enrollment status. However, when identifying class standing, it was concluded that as students mature from freshman to upperclassman and graduate levels, they move from a preference for traditional learning environments to constructivist learning environments. With regard to college affiliation, students in the College of Education and Human Development and the College of Musical Arts reported the highest Likert-scale scores indicating a strong preference for constructivist learning environments. Students in the colleges of Health and Human Services as well as Technology reported the lowest scores indicating a preference for traditional

learning environments. Although Education students are the most constructivist, they are also the least likely to use computer technology (specifically Internet-related applications) for either class or personal use. These data support the negative correlations between constructivism and use of computer technology. The researcher concluded that although faculty in the College of Education and Human Development support constructivist learning, they do not have the access to, familiarity with, nor confidence in the use of educational technology to support student-based learning.

Recommendations

University Initiatives

To improve faculty's integration of computers, their access to up-to-date computer technology must be increased substantially. Faculty should be provided with released time to learn about technology as well as how to successfully integrate technology. Equally important to the faculty's ability to use technology is the availability of computer technology in the learning environment itself; therefore, it is recommended that additional instructional classrooms be wired for educational computer use.

Constructivist Teaching Methodologies

Faculty are encouraged to use technology to support students' construction of knowledge by representing their ideas and knowledge. Faculty are recommended to encourage students to discover the wealth of information available on the Internet and use this opportunity to teach students how to make critical decisions as to the validity and reliability of the information they find. To improve students' communication with each other and faculty, class email discussions should be promoted. The data indicate that many students have knowledge of computers, but do not put this knowledge to use to facilitate their academic needs. Therefore, it is recommended that faculty take advantage of students' existing computer knowledge by incorporating learning activities that make use of this knowledge.

Further Research

How does students' prior access to technology (high school and personal use) affect their use of technology at the university level? How do students' perceptions of technology (e.g., its use as a performance tool rather than as a learning tool) affect their frequency of use of technology? How do gender differences specifically affect the differences in male/female use of computers? Do freshmen use computer applications more often because they are enrolled in general education courses that require more papers than other courses? Or are the graduate students and faculty who teach these general education courses more familiar with the integration of educational technology? What factors affect the differences of computer use among academic colleges? Further research must be conducted to determine equity issues between computer use and race/ethnicity in order to ensure and support a diverse learning environment.

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A Comparison of Diskette and Traditional Paper and Pencil Mail-Out Survey Methods for Measuring Self-Directed Learning with the OCLI

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Abstract

The purpose of this study was to compare business educator's responses to a survey using the mail-out survey method with a diskette format and a traditional paper and pencil format. The study used the Oddi Continuing Learning Inventory (OCLI) and sought to examine if there was a difference in mean scores and variance among questions and reliability between the groups. The null hypothesis was that no significant differences would appear between paper and diskette surveys. The study found there was a significant difference in the self-regulation for learning sub-scale and selected individual items on the instrument.

Introduction

Data collection is one of the principal challenges when conducting survey research. More specifically, to conduct quality survey research using postal delivery, the methodology requires the researcher to implement follow-up procedures to help determine if the data is representative of the population sampled. Researchers sometimes choose the mail-out survey based on cost savings, convenience, time, anonymity, and reduction of interview bias (Rea & Parker, 1997). However, typically mail-out questionnaires provide lower response rates. If rigorous data collection methods are not followed, it is not even possible to determine if the data is representative of the population or is externally valid. Dillman's total design method is an example of a quality method that can be used to collect data.

Implementing a highly rigorous process of data collection takes more time (Dillman, 1978). Even when a quality survey methodology is utilized, concerns still exist. With individuals self-selecting to participate in a mail-out survey, a bias delivered sample may occur (Rea & Parker, 1997). In spite of these risks, mail-out survey methodology is one of the most widely used methods to collect data from samples and make inferences to populations. When technology is integrated into the research process concerns still exist.

Technology is rapidly changing how many processes are conducted in business and education. Within business education, researchers have begun to integrate technology within survey methodology (Bartlett & Kotrlik 1999; Truell, 1999). These technologies have enabled researchers to collect data via e-mail, the Internet, and diskette survey methods. It is a concern of researchers using technology in research, more specifically the use of diskette mail-out surveys, to understand if technology yields significantly different results than the traditional paper and pencil survey method.

Review of Literature

Research examining the effects of technology on response time, response quality, and response differences are not conclusive. Much of the research within the field has been dedicated to comparing electronic mail surveys with the traditional paper and pencil method (Allen & Fry, 1986; Kiesler & Sproul, 1986; Rafali, 1986; Parker, 1992; Kawasaki & Raven, 1995).

Descriptive studies have provided researchers with an image of electronic survey methods (Meehan & Burns, 1997; Webster, 1995; Sudmalis, 1992; Allen, 1987). The majority of studies described the response rates to electronic survey methodology. Within the majority of these studies, it has been shown that technology enhanced surveys have yielded lower response rates (Allen & Fry, 1986; Kiesler & Sproul, 1986; Rafali, 1986). Sudmalis (1992) conducted a survey in an e-mail group ($n=558$) that provided a delivered sample of only 14.3%. Mavis & Brocato (1998) reported a higher response rate for postal surveys (77.0%) compared to e-mail (56.0%). Allen (1987) found from surveying a group of 249 individuals 29.0% responded in the electronic survey group and 49.0% responded to the traditional survey. Webster (1995) utilized an online public access system to integrate the electronic distribution of a survey. With this approach to surveying, user responses were provided instantaneously when the surveys were completed and were in a form that was read by machine. The first test of the electronic survey system achieved a response rate of less than 10%.

However, these findings are not consistent among all groups. In a corporate setting, an e-mail survey design provided a higher response rate than the traditional method (Parker, 1992). In another group, cooperative extension agents, Kawasaki & Raven (1995) reported a response rate of 83.0% when an e-mail method was implemented. With individuals identified as business education leaders Truell (1999) found the electronic mail survey yielded a lower response rate than the traditional mail survey.

Meehan & Burns (1997) completed an electronic survey of a listserv discussion group that yielded a response rate of 23.6%. A technological problem with surveying a listserv group is the difficulty of defining the target population. This leads to problems concerning the external validity of the study.

The perceptions of electronic survey participants have been shown to be positive. Researchers who use electronic surveys found that respondents who completed computer surveys reported to find them more interesting and seem to be more aware of their thoughts and feelings while completing them (Rosenfeld, 1993; Allen, 1987).

Benefits electronic surveys bring to research are the speed in which they can be used to collect data and the low-cost research option they offer (Furlong, 1997; Goree & Marszalek, 1995). Furlong (1997) stated other potential benefits of using e-mail to conduct survey research include the lack of intermediaries increases the chances that respondents will receive the survey promptly, asynchronous communication allows users to think about answers, the medium itself may encourage users to respond more candidly, and e-mail distribution lists are used to distribute questions and collect responses already.

Furlong (1997) addressed the concern that data from electronic surveys may not be as representative as that from a mail survey. Researchers may receive a much more biased response from electronic survey methods. Allen (1987) found that computer respondents provide responses with higher variances than the traditional method. Not many studies have empirically examined the differences in responses to electronic and traditional surveys. Allen and Fry (1986) reported only minor differences in the means of sophomore's attitudes between computer and scanned paper groups. The computer-group members reported having more computer experience and students in the scanned paper group were more likely to overestimate their actual grade point average. While Bartlett (1999) showed there was a difference in the mean score of one self-directed learning instrument when comparing the survey methods and no significant differences in another self-directed learning instrument when the participants were given the option of selecting the survey method.

Purpose

The purpose of this study was to compare responses to a survey using the mail-out survey method with a diskette format and a traditional paper and pencil format. The study also sought to examine if there was a difference in variance among questions and reliability between the groups. The null hypothesis was that no significant differences would appear between paper and pencil format responses and diskette responses.

Methodology

Participants

The complete frame for this study consisted of all business teachers (N=1679) in Pennsylvania. The survey sought the participa-

tion of a randomly selected group of business teachers (n=1080) in Pennsylvania.

Instruments

The Oddi Continuing Learning Inventory (OCLI) and other researcher created items were placed in a booklet and diskette format (minimum requirements for diskette were IBM platform, 386PC, & Windows based). The OCLI consists of a 24-item Likert type scale. Oddi (1986) stated the Oddi Continuing Learning Inventory, when administered to a sample of 271 graduate students, has an estimated internal validity of .87 and test-retest validity of .89. These scores are above the .70 or more that is "generally accepted as representing good reliability" (Letwin, 1995, p. 31) and provide evidence of instrument reliability.

The demographic sheet collected data concerning the gender, age, educational level, ethnicity, years of teaching experience in business education, job tenure, current pursuit of further education in business education, and marital status of the participants. All demographic variables have been shown to have relevance to self-directed learning.

Data Collection

Of the 1080 participants, half (n=540) received a cover letter and the traditional paper survey. The other half (n=540) of the sample received a cover letter and the disk survey. One week following the initial mailing, the complete sample received a post-card follow-up. At the end of the second week, all individuals who did not respond received a second packet including a second cover letter and survey in the same form as the first mailing. At the end of the third week, a strong phone follow-up was made to the non-respondents to complete the survey.

Data Analysis

Mean, standard deviation, frequency, and percent were used to describe the participants and their responses in the study. Inferential t-tests were used to compare the means of the total OCLI score, individual scales, individual items, age, and years teaching experience in business education. The non-parametric test of chi-square was used to compare the respondent's choice of survey method. Chi-square was also used for comparing the ordinal and nominal data including the variables of gender, educational level, ethnicity, job tenure, pursuit of further education in business education, and marital status.

Findings

Of the 540 participants surveyed using the diskette method, 202 (37.4%) responded and of the 540 participants survey using the traditional method, 259 (48.0%) responded. Table 1 shows that the traditional respondents 70% (n=180) were female, 35% (n=91) held a 4-year degree, 76% (n=197) were married, 88% (n=228) had job tenure, 63% (n=164) were not pursuing further education, and 95% (n=247) were Caucasian. On average the teachers had 19.6 (SD=10.4) years teaching, were 45.8 (SD=9.6)

years of age, and earn on average 48.7 ($SD=11.9$) thousand. Of the diskette respondents, 67% ($n=133$) were female, 34% ($n=67$) held a masters degree, 84% ($n=167$) were married, 72% ($n=144$) had job tenure, 56% ($n=111$) were pursuing further education, and 83% ($n=167$) were Caucasian. On average the teachers had 15.8 ($SD=10.7$) years teaching, were 44.7 ($SD=12.4$) years of age, and earned on average 41.8 ($SD=12.8$) thousand.

When comparing gender, educational level, marital status, job tenure, pursuit of further education, and ethnicity among diskette and traditional respondents, the educational level of the participants and marital status were both significantly different between the diskette and traditional respondents. Gender ($X^2=.209$, $df=1$, $p=.648$), job tenure ($X^2=4.19$, $df=2$, $p=.123$), pursuit of further education ($X^2=.386$, $df=1$, $p=.534$), ethnicity ($X^2=6.65$, $df=4$, $p=.156$), and age ($t=-.977$, $df=311.08$, $p=.329$) were not significantly different between the disk and traditional

groups. Age did have unequal variance ($F=8.512$, $p=.004$) between the groups. Years teaching ($t=-.363$, $df=410$, $p<.001$) and salary ($t=-5.60$, $df=407$, $p<.001$) were significantly different between the disk and traditional groups.

Table 2 shows the comparisons between the diskette respondents and paper respondents on the individual items, sub-scales, and total score. Of the 24 items on the OCLI, item 1 ($t=2.05$, $df=405.62$, $p=.041$), item 12 ($t=-2.12$, $df=415.87$, $p=.034$), item 17 ($t=-2.79$, $df=411.51$, $p=.006$), and item 20 ($t=-2.39$, $df=437$, $p=.017$) were significantly different between the traditional and diskette survey groups. Table 3 shows of the three sub-scales, self-regulation for learning ($t=-2.41$, $df=431$, $p=.016$) was the only one significantly different between the groups. The overall OCLI scale was not significantly different between the two groups.

Diskette group had an estimated interval reliability of .69 on the general factor scale, .66 on the avidity to reading scale, .61 on the self-regulation scale, and .51 on the overall instrument. Traditional group had an estimated interval reliability of .81 on the general factor scale, .70 on the avidity to reading scale, .67 on the self-regulation scale, and .72 on the overall instrument. Using Cronbach's Alpha to estimate reliability provided evidence that the traditional survey method provided higher reliability.

Conclusions/Recommendations

The diskette and traditional paper and pencil groups had unequal variance in three items on the OCLI. The t -tests revealed that there was a significant difference in the means of four items on the OCLI. Of the sub-scales, self-regulation was the only scale that had a significant difference in mean score. The overall score was not significantly different between the two groups.

The traditional group had higher internal consistency according to the estimate with Cronbach's Alpha than the diskette group. Researchers must be made aware there may be some differences between data collected on paper and pencil surveys and diskette surveys. Researchers must also be aware of the possible bias response with demographic differences being present in individuals who choose to respond to diskette and paper and pencil surveys. Researchers must also select the appropriate method when collecting data.

Using a diskette survey method to gather data does not yield equivalent responses when compared to a traditional paper and pencil method. Research has shown it cannot be assumed that collecting data via electronic means provides equivalent results as paper and pencil survey methods. Since responses were significantly different between the two groups, this method of data collection adds more unexplained variance to the research when using the OCLI. This method did not prove to improve the effectiveness and efficiency in obtaining responses to surveys and more business teachers responded to the paper and pencil survey over the diskette.

Table 1.
Description of Gender, Educational Level, Job Tenure, Marital Status and Pursuit of Further Education of Diskette and Paper and Pencil Respondents on the OCLI

	Traditional		Diskette	
	<i>n</i>	%	<i>n</i>	%
Gender				
Female	180	69.5	133	66.5
Male	79	30.5	53	26.5
Missing	0	0.0	14	7.0
Educational Level				
4 year degree	91	35.1	55	27.5
Masters degree	89	34.4	67	33.5
Masters plus 30				
/Specialist	77	29.7	34	17.0
Doctoral	1	.4	3	1.5
Other	0	0.0	27	13.5
Missing	1	.4	14	7.0
Marital Status				
Married	197	76.1	167	83.5
Single	32	12.4	5	2.5
Divorced/Separated	21	8.1	0	0.0
Missing	9	3.5	28	14.0
Job Tenure				
Yes	228	88.0	144	72.0
No	30	11.6	29	14.5
Missing	1	.4	27	13.5
Pursuit of Further Education				
Yes	94	36.3	72	36.0
No	164	63.3	111	55.5
Missing	1	.4	17	8.5
Ethnicity				
Caucasian	247	95.4	167	83.4
African American	4	1.5	5	2.5
Native American	5	1.9	1	.5
Asian	0	0.0	2	1.0
Missing	3	1.2	25	12.5

Table 2
Comparison of Traditional and Diskette Scores on the OCLI Items

Inventory	Traditional Survey		Diskette Survey		t	df	p
	Mean	SD	Mean	SD			
Item 1	6.64	.67	6.77	.64	2.05	405.62	.041*
Item 2	6.65	.70	6.65	.91	-.04	438	.969
Item 3	5.93	1.20	6.00	1.13	.62	438	.533
Item 4	6.30	.97	6.39	.90	.97	441	.333
Item 5	6.68	.64	6.70	.89	.21	440	.834
Item 6	6.40	.83	6.35	.81	-.57	441	.567
Item 7	5.71	1.35	5.61	1.31	-.78	438	.436
Item 8	5.87	1.24	5.93	1.19	.50	438	.616
Item 9	4.97	1.66	4.78	1.71	-1.20	437	.230
Item 10	3.48	1.92	3.47	1.89	-.06	437	.952
Item 11	5.14	1.43	5.04	1.59	-.72	436	.472
Item 12	2.95	1.98	2.57	1.78	-2.12	415.87	.034*
Item 13	5.00	1.93	4.99	1.92	-.050	439	.960
Item 14	5.19	1.46	5.31	1.36	.846	433	.398
Item 15	5.93	1.17	5.98	1.22	.459	438	.646
Item 16	6.66	.73	6.70	.84	.444	439	.657
Item 17	3.55	1.98	3.03	1.87	-2.79	411.51	.006*
Item 18	6.32	.94	6.44	.86	1.43	440	.154
Item 19	5.09	2.00	4.96	2.04	-.667	437	.505
Item 20	3.78	1.67	3.39	1.74	-2.39	437	.017*
Item 21	3.12	1.87	2.97	1.87	-.80	437	.423
Item 22	5.86	1.29	5.93	1.31	.535	434	.593
Item 23	5.50	1.33	5.32	1.51	-1.26	437	.209
Item 24	3.92	1.98	4.03	2.05	.57	438	.569

Note. Item 1, 12, and 17 had unequal variance.

* $p < .05$

Table 3
Comparison of Traditional and Diskette Scores on the OCLI and Sub Scales

Inventory	Traditional Survey		Diskette Survey		t	df	p
	Mean	SD	Mean	SD			
General Factor	6.28	.58	6.35	.64	1.15	424	.251
Avidity to Reading	5.04	.93	4.96	.91	-.89	421	.372
Self-regulation	3.48	1.24	3.19	1.17	-2.41	431	.016*
Total OCLI Score	5.28	.53	5.24	.48	-.79	407	.428

* $p < .05$

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A Comparison of Recruiters' and Students' Preferences Concerning Résumé Design and Content: Are Students' Perceptions What Recruiters Need?

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Abstract

A résumé is the first impression an applicant makes on an employer or recruiter. It is the single most important tool in introducing yourself to a prospective employer. With this important determination, educators have a duty to instruct students in preparing a résumé that appeals to and attracts potential employers and recruiters to delve further into the background, education, and skills of the student. The purpose of this study was to identify résumé design and content that meets or exceeds current employer expectations and to determine whether students' perceptions equate with their needs. This study utilized recruiters/human resource managers from three regional career fairs and Business and Interpersonal Communication students from a mid-Atlantic university. Results of this study indicate that students and recruiters differ significantly in the design and content of résumés as well as in what factors influence employment decisions.

Introduction

A job seeker can have all the education and experience in the world, but if the résumé isn't well-written, chances are they're not going to get an interview with the company they're pursuing. (Pollock, 1999, p. 1).

For an employer or recruiter, the résumé creates the first impression of an applicant. Therefore, the résumé is the single most important tool in introducing an applicant to a prospective employer (Kraft 1998). Unfortunately, the average person is most often not privy to the needs and desires of employers or recruiters, so development of the résumé follows a textbook approach. Given the plethora of publications available in today's market, one can surmise that texts focusing on résumés may only remotely resemble each other. Therefore, while one source may tout itself as the "number one" resource for résumé construction, another text's by-line may scream, "the only book you will ever need to prepare a job-winning résumé." Which text would be the most appropriate for the novice user, the student developing a résumé for entry into a career, or for the job fair attendee trying to capture the recruiters' attention? No one knows for sure. So, how well do students fare when developing a résumé? Do they know what information recruiters are seeking or how they expect the résumé format to appear?

Purpose of the Study

The purpose of this study was to investigate career fair recruiters' preferences concerning résumé content and design and to

compare these findings with business communication students' preferences. Specifically, this study was designed to provide data which would indicate whether students were learning to develop the skills necessary to attract attention to their résumés or whether they were acquiring appropriate knowledge of the type of information and its presentation that recruiters desire most to see in an "interview-winning" résumé.

Three research questions guided the study:

1. According to career fair recruiters, what characteristics in terms of content, format, and appearance are most important to them or are preferred by them?
2. What résumé format do business communication students prefer and why?
3. Are there differences among preferences for résumé content and design between career fair recruiters and business communication students?

Related Literature

Recruiters spend an average of five minutes reviewing résumés; experienced recruiters spend even less time (McNeilly & Barr, 1997). Research bears the fact that appearance of a résumé is extremely important. In fact, "according to Kennedy's Career Strategist, a number of companies are telling recruiters not to bother gathering references on particular candidates because their résumés look so good" (Supervisory Management, 1995). This impact cannot be ignored.

Nevertheless, research indicates a fine balance exists between style and substance. As important as style can be, résumés with content that lacks "teeth" or strong, action language can hinder employment (Lyons, 1997). Using general terms also can make a job applicant appear aimless. "Lack of specificity usually means lack of commitment. Nobody can be equally skilled at everything" (Kennedy, 1998). In addition, using infantile vocabulary and repeated words, along with spelling and grammatical mistakes, can doom a candidate immediately (Marshall, 1996).

In comparing résumé formats for business students, McNeilly and Barr (1997) found that recruiters wanted students to be well rounded and desired that they focus on honors and activities which indicated leadership and communication skills. Additionally, the recruiters desired that students explain related work experience. However, when asking academics to compare the same résumés, McNeilly and Barr found that instructors preferred that students focus on their four years of education, encompassing their "skills and knowledge developed in the classroom, including written and oral business projects" (p. 1). As noted in this example, recruiters' and academics' views concerning résumé content and focus differ; and when students are receiving classroom instruction in direct contradiction to what recruiters consider important to a "good" résumé, significant implications are easy to identify. Students will focus on areas which are unimportant to recruiters and will lose career opportunities.

Additional research has identified problem areas which corporate recruiters consider "red flags" (Kennedy, 1998). Some of these examples are relevant only to persons who have been in the job market for several years (i.e., long-term jobs with no significant internal movement; job results that have been inflated; candidates who stayed with an organization during a declining period). Nonetheless, one caveat which stands out and would be germane to any résumé is corporate recruiters want to see evidence of accomplishments in terms of facts and figures. Corporate recruiters further disclosed that a résumé is "indicative of candidate quality" (Kennedy, 1998, p. 3)—a sobering statement when considered in conjunction with the confusion existing between academics' and recruiters' résumé design preferences.

Several articles have appeared in various publications authored by so-called "experts" in résumé preparation. Some of these individuals are professional recruiters, former human resources directors, company presidents, or academicians (Hutchinson and Brefka, 1997; Kraft, 1998; Lyons, 1997; Marshall, 1996). The most common thread in each is the imperative "include only pertinent information" and "never include personal data such as birth date, height/weight, marital status, and race." Other suggestions contradict each other—"do not include a statement of objective" (Marshall, p. 2) or "include an objective on your résumé (Kraft, p. 2); "use no more than two pages" (Marshall, p. 2) or "keep your résumé to one page" (Kraft, p. 2). Again, these examples demonstrate the divergent tracks expert advice can take. Who is correct? Who is incorrect?

Students often fail to recognize the sole purpose of the résumé, believing that its responsibility is to get them a job. In reality, though, the résumé is a marketing tool, one which establishes a relationship between the customer (student) and the buyer (employer) (Solly and Fischer, 1997). Therefore, an important step in the development of the résumé is lost—the one in which students analyze the needs and wants of the employer. Only after the employer's objectives are established can students actually develop a résumé to show how they can fill those needs, a résumé that will get them an interview. Instead, students rely on instructors to provide a template for their résumés, one which will allow them to "get a good grade." Therefore, are students developing résumés that recruiters desire to receive?

The Study

This study utilized recruiters/human resource managers from three regional career fairs: Westmoreland County Assists Native Talent (W.A.N.T.) Job & Career Expo, WestPACS Job Fair, and the Indiana University of Pennsylvania Career Expo, along with Business and Interpersonal Communication students from a mid-Atlantic university. After receiving endorsement from the career services offices, the researchers created a résumé survey packet consisting of an introductory letter of explanation, a brief demographic survey, five (5) varying resumes, and a rating sheet. The researchers then attended each career fair, explained, and distributed the résumé packets to each employer. Employers were asked to complete the survey and to evaluate and rank the attached résumés. Open-ended comments were also encouraged. The researchers returned to each employer prior to the conclusion of the career fair and retrieved completed surveys. This method of data collection insured appropriate sample size.

Student participants were given identical résumé survey packets. Business and Interpersonal Communication students enrolled in eight (8) sections of the course were encouraged to participate in the study. The student volunteers, too, were asked to evaluate and rank attached résumés as well as to provide open-ended comments. The packets were collected in a receptacle placed by each room exit to ensure anonymity of participants. Statistical analysis of the data included descriptive analysis as well as t-tests to analyze the two groups.

Instrument Design

The five résumé designs were loosely based on popular guides such as *Résumés That Knock 'em Dead* by Yate, *Trashproof Résumés* by the Princeton Review, and *101 Best Résumés* by Block and Betrus. One résumé was created using a Microsoft Word template, a feat many students find most appealing when creating their individual résumés. Two of the résumés were identical except for the objective and the layout. The names given on each résumé were not reflective of gender, and each résumé was designed to seek entry-level employment with a minimal amount of work experience. The researchers also created typographical and grammatical errors on all résumés.

The questionnaire for recruiters consisted of demographic information such as company name, gender and educational level of recruiter, and a quick survey composed of nine questions on a five-point Likert scale concerning résumés and their impact on employment decisions. Recruiters were asked to rank order the résumés (1 being the best; 5 being the worst) and were asked to respond to an open-ended question concerning their choice for "best" résumé and the qualities that made it number one. The questionnaire for students consisted of demographic information such as instructor name, gender, classification (junior or senior), and major. The quick survey as well as the résumés presented to the students for ranking were identical to those contained in the recruiters' packets.

Data Analysis

Recruiters

Data for the study was analyzed using Statistical Package for the Social Sciences (SPSS) for Windows. Collection of the completed packages numbered 183, from a variety of industries. Demographic information collected indicated 40.9 percent of the recruiters were male while 58.6 percent were female. Under education, 60 percent had completed a college degree with 25.7 percent completing an advanced college degree.

Résumé Ranking

Résumé C was the résumé most often ranked number one (best) by the recruiters. Written comments included "nice use of white space," "just enough information," and "easy to scan." Résumé D was ranked number two, followed in rank order by Résumé B, A, and finally E. Worth noting is that the least favorite résumé (E) was the Microsoft Word template.

Students

The researchers collected 157 usable surveys from students enrolled in eight (8) sections of Business and Interpersonal communication at a mid-Atlantic university. Demographic information indicated that 56.1% of the students were male and 43.9% were female. In terms of classification, juniors (59.2%) outnumbered seniors (40.8%), and students had a variety of majors.

Résumé Ranking

Résumé B was the résumé most often chosen as the students' number one selection. Résumé C was the second most frequent choice, followed by résumés D, A, and E.

Students and Recruiters Comparison

Résumé Ranking

Significant differences existed between the students' perceptions and the recruiters' perceptions in terms of résumé design. Re-

Table 1
Résumé Rankings of Recruiters and Students

Résumé	Recruiter Mean (N=183)	Student Mean (N=157)	p Value
A	2.81	3.09	.030*
B	2.28	3.02	.000**
C	2.33	2.31	.914
D	3.07	2.91	.307
E	3.66	4.39	.000**

*Significant at the .05 level.

**Significant at the .01 level.

cruiters' rankings varied differently from students' rankings, particularly focusing on Résumés A, B, and E. While students selected Résumé B as their "number one" choice, recruiters ranked Résumé B third (Table 1).

Survey Questions

Recruiters and students also differed significantly in their answers to the survey questions (Table 2). Students strongly agreed that the physical appearance of a résumé influenced employment decisions. Recruiters, however, did not view that aspect of résumés as important.

Recruiters indicated that the content of a résumé was the only factor that influenced employment decisions, but students' answers were more neutral on the subject. Although both groups agreed that mistakes found on a résumé influence hiring decisions, students believed this to be a more critical issue than recruiters did.

Students agreed that an email address on a résumé was important. Again, this finding disagrees with recruiters' opinion of email address inclusion. Students also differed in their answers to the influence of colored paper on employment decisions. While students were neutral on the issue of color, recruiters disagreed with the idea of résumés on colored paper influencing employment decisions.

Conclusions

In retrospect, while the findings in this study are enlightening, one should not generalize them beyond the scope of the study. The sample represents one geographical region. The following conclusions were reached:

1. Recruiters preferred simple, uncluttered résumés;
2. Templates are not acceptable formats for résumés; and
3. Students and Recruiters differ significantly in the choice of résumés as well as what factors influence employment decisions.

Table 2
Answers to Survey by Recruiters and Students

Survey Questions	Recruiters Answers (Means)	Students' Answers (Means)	p Value
The physical appearance of the résumé influences my employment decision.	3.6713	4.414	.000**
Content is the only factor that influences my employment decision.	2.985	2.465	.000**
Grammar usage is a factor that influences my employment decision.	4.57	4.333	.391
Mistakes found on the résumé influence my employment decision.	4.203	4.443	.014**
References should be listed on the résumé.	2.460	2.611	.213
Course listing should be a part of the résumé.	2.790	2.745	.656
Grade Point Average (GPA) should be listed on the résumé.	3.532	3.678	.748
An email address should be listed on the résumé.	3.802	4.080	.005**
Résumés on colored paper (i.e., eggshell, cream, dove colors) influence my employment decision.	2.417	3.242	.000**

*Significant at the .05 level.

**Significant at the .01 level.

The focus of previous studies involved human resource managers who work inside the corporate building and have responsibilities other than hiring. More and more, students' initial screenings are conducted at job fairs and other "shopping mall" type functions. Research must be performed to insure that students present résumés that can be screened quickly by people or persons whose main responsibility is the scanning and reviewing of résumés. As educators, we must be cognizant about industry demands of candidates for employment to prepare students for a successful employment process. The differences between students' and recruiters' perceptions may reflect the lack of communication between educators and industry.

Recommendations for Further Research

The limited scope of the study strengthens the need for further research. Additional studies should include other regions of the United States as well as a comparison of the results of each region. As we continue our momentum toward a global society, our students need to be prepared to produce résumés acceptable to recruiters in all regions. Another geographic focus would be to examine urban versus rural recruiters' preferences.

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A Comparison of Turnover and Retention Factors of Secondary and Postsecondary Business and Marketing Education Teachers

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Abstract

Secondary and postsecondary institutions are being impacted with the increased number of teacher vacancies due to retirements, attrition, and student enrollment growth in programs. Previous research efforts have focused on professional development opportunities, supply and demand, and job satisfaction of teachers. Few studies have been conducted to explain a teacher's decision to leave or remain in teaching. The purpose of this study was to identify those factors impacting teacher turnover and retention.

Literature Review

Teacher Supply and Demand

Follow-up studies of secondary career and technical education teachers in the United States have provided valuable information on supply and demand (Camp, Case, Dean, & Fannon, 1998; Curran, 1996; Jackman & Rehm, 1994; LaBonty, 1999; McEntee, 1997; Miller & Meszaros, 1996; and O'Neil, 1993). Studies conducted in 1987 (Hopkins) and 1992 (Gades & Everett) noted business education graduates were not entering the teaching profession. When asked why they were not teaching, respondents indicated they couldn't find a teaching position. Recent research (LaBonty, 1999) indicated there is a shortage of business education teachers to meet the demand across the United States. Business teachers exceed the supply from 8% in 1991-1992 to 64% in 1997-1998. In Minnesota, business education teacher vacancies/hires in 1999-2000 identified 69 vacancies in business education not filled when school started in the fall 1999 (Yussen, Browning, & Colby, 1999). Research conducted by Ruhland (1995/1996) indicated a surplus of marketing education teachers in the United States.

Based upon previous research conducted, it is not apparent if two-year colleges are faced with a shortage of qualified teachers. What is apparent is that two-year colleges are beginning to be impacted by the increased number of full-time teaching positions to be filled by those who will be retiring. In 1997, a study conducted by Vandermaast (1998) indicated 65% of full-time faculty in community colleges were 45 years of age or older. Another study by Baker, Roueche, and Gillett-Karam (1990) identified over 50% of the teachers currently in community colleges will be retiring. In addition to retirements, training needs have increased in the area of computers and technology. Community colleges are already facing the challenges of recruiting and hiring good qualified faculty. They are faced by the competition from business and industry where salaries are typically higher.

According to Lynch (1996) "less than fifty percent survive longer than 5 years in the classroom". New teachers will encounter some problems. Mentoring programs, assistance from colleagues, time to plan and reflect with colleagues, in-service education, and help with teaching materials and student learning are often cited as areas of imperative assistance for beginning teachers (p. 20). A good mentoring program can provide a first year teacher the opportunity to work with an experienced teacher who can share both teaching strategies and ideas to assist with classroom discipline issues. Lynch (1997) recommended an increase in the supply and academic quality of those entering the teaching force.

This is especially critical in vocational education, where the enrollment decline in teacher education has been so steep and where so many in the teaching force lack the academic credentials of their professional colleagues in the public schools, technical institutes, and community colleges" (p. 61).

Teacher Turnover and Retention

Studies have been conducted on teacher retention (Bobbit, et al 1994; Chapman, 1984; Chapman & Hutcheson, 1982; Chapman & Green, 1986; Murnane et al., 1991; and Schlecty & Vance, 1983) and teacher satisfaction with teaching (McBride, Munday & Tunnell, 1992). Further literature review identified retention studies completed for vocational agriculture teachers (Cole, 1983; Knight & Bender, 1978; Miller 1974 and Reilly & Welton, 1979). Findings varied from these studies identified personal characteristics, student concerns, workload, recognition received, salary, and policy-administration as common turnover and job dissatisfaction factors.

Research conducted by Ingersoll (1999) has identified further implications related to the issue of teacher turnover. "Fully understanding turnover requires examining the social organization of the schools in which turnover and staffing problems are embedded and examining turnover at the level of the organiza-

tion" (p. 25). Teacher turnover is a significant issue and needs to be addressed from a school's organization structure and overall effectiveness.

High school teachers have identified job-related stress as a reason for leaving the teaching profession (Farber, 1984; Osborne, 1992; and Terry, 1997). A recent study by Adams, Heath-Camp and Camp (1999) examined the relationship between educational system stressors and stress in vocational education. Findings from this study support the need to look at teacher turnover and retention. Four key recommendations were made as a result of this study. Leaders within educational systems need to be sure that teachers understand their teaching role. Clarifying the teacher's role can eliminate the confusion and anxiety teacher's encounter. A second recommendation was to reduce the additional tasks performed by teachers. This included completing unnecessary paperwork and attending meetings outside of normal working hours. Developing and endorsing a mentoring program for teachers was the third recommendation. Providing vocational teachers with the resources they needed to perform their job was the fourth recommendation. Helping to reduce stress in the teaching environment might be one way to retain teachers in the profession.

Pucel, Sonnach, and Obok (1992) conducted a study related to job satisfaction of beginning and experienced technical college instructors. Participants for this study were employed in vocational education teaching positions. Job needs of beginning and experienced teachers were found to be significantly different. The six reasons identified for leaving technical college teaching included: (a) work environment, (b) students, (c) less stress, (d) type of co-workers, (e) maintain competence, and (f) wanted a job change (p. 28). Pucel and Kaynes (1989) completed an earlier study to identify movement of experienced instructors in, out of, and within the postsecondary technical institutes and factors related to instructor turnover. Job change, co-workers, and work environment were reasons identified for leaving vocational education teaching positions (p. 30).

Turnover is defined as the degree of individual movement within a social system (Price, 1977). Social systems include schools. Turnover focuses on the individual, not the movement of organizations. Retention is defined as those teachers who stay in the profession (Grady & Figueira, 1987). Their research recommendations include the study of personal characteristics, job and career satisfaction, and behavioral intent to determine why vocational teachers leave the profession.

Few models or theories to explain teacher's decisions to leave or remain in teaching have been developed. Data is collected by the U. S. Department of Education, National Center for Education Statistics (NCES) using the Schools and Staffing Survey (SASS). Data from the 1993-94 SASS analyzed four clusters of variables: school characteristics, teacher background, workplace conditions, and teacher compensation (U. S. Department of Education, 1997a). Findings from this study identified 11% of the vocational/technical education teachers in public schools indi-

cated they were not satisfied with their teaching experience (p. 38). In addition 20% of public school leavers and 28% of private school leavers left because they wanted to pursue other career opportunities, they were dissatisfied with the profession, or because they desired better salaries or benefits (p. 4). Leaver is defined as those teachers who left the teaching profession after the 1993-94 school year (U. S. Department of Education, 1997b).

With the impending faculty retirements and potential teacher shortage, the time is right to study those factors that will enable secondary and postsecondary institutions to retain faculty who have been hired. Turnover is costly to any organization, but a greater challenge is hiring teacher replacements. In order to develop and retain the high quality of business and marketing education teachers, an understanding of the factors associated with teacher turnover and retention is critical

Theoretical Framework

Various models and theories have been identified to serve as a foundation to studying teacher turnover and retention. Holland's (1973) theory of vocational choice posits that vocational satisfaction, stability, and achievement depend on the congruence between one's personality and environment in which one works. Teachers who rate themselves higher in skills and abilities, values, and professional accomplishments should exhibit more satisfaction with their career. A work environment where these factors are supported can greatly impact their decision to stay or leave the teaching profession. Their reasons for career changes may be related to changes in personality, environment, or overall perception of what is involved in teaching.

Krumboltz' (1979) social learning theory of career decision-making identified three key factors that influence the nature of career decision. These factors included genetic endowments, environmental influences, and learning experiences. The basis for this theory is the need to understand one's educational and occupational preference and how that impacts selection of an occupation. Most educational and occupational decisions are influenced by factors outside our control. Genetic endowments include race, gender, and physical appearance and characteristics. Environmental influences include social, cultural, political or economic influences. Any direct effect produced by one's action is part of our learning experiences. An understanding of these factors can help answer the question why individuals change occupations throughout their lives.

Expanding on Krumboltz' social learning theory, Chapman developed a model associated with teacher retention/attrition (Chapman, 1983; Chapman, 1984; and Chapman & Green 1986). This model offers a specific application to decisions made about teaching careers. The model suggested that teacher retention is a function of (a) teachers' personal characteristics, (b) educational preparation, (c) initial commitment to teaching, (d) quality of first teaching experience, (e) professional and social integration into teaching, and (f) external influences. These six factors influence career satisfaction, which relate to a teacher's

decision to remain in or leave teaching. The model was designed for public school teachers' decision to remain or leave teaching. Chapman tested his model of influences associated with teacher attrition in 1984 by surveying graduates who were recipients of a teaching certificate from the University of Michigan (Chapman, 1984, p. 646). Findings from this study supported his model of teacher attrition. It is this model that forms the theoretical framework for this study.

Purpose and Research Questions

The purpose of this study was to identify factors that impact the turnover and retention of secondary and postsecondary business and marketing education teachers. In addition, a second purpose was to identify the skills teachers possess and factors that determine a teacher's willingness to continue teaching. The following research questions guided this study:

1. What was the rating of preparation for highest level of education attained of secondary and postsecondary business and marketing teachers?
2. What was the level of commitment to teach of secondary and postsecondary business and marketing education teachers?
3. What was the rating of first year teaching experience of secondary and postsecondary business and marketing education teachers?
4. What factors impact a secondary and postsecondary business and marketing education teacher's decision to leave the teaching profession?
5. Is there a statistically significant relationship between business and marketing leavers and stayers and ratings of skill level at the secondary level? At the postsecondary level?
6. Is there a statistically significant relationship between secondary and postsecondary business and marketing leavers and stayers and ratings of characteristics related to their willingness to continue teaching at the secondary level? At the postsecondary level?

Methodology

Two surveys (secondary and postsecondary teachers) were developed for this study employing items used in earlier studies (Chapman & Hutchenson, 1982; and Miller, 1974). Each survey consisted of five sections: (a) educational preparation, (b) teaching experience, (c) skills and abilities, (d) institutional factors, and (e) demographics. Four types of question structures used included open-ended, close-ended with ordered choices, close-ended with unordered response choices, and partially close-ended (Dillman, 1978).

To validate the surveys, teacher educators of business and marketing teacher education programs were selected. Teachers reviewing the surveys were from institutions offering degrees or licensures in business and marketing teacher education (i.e. bachelor's, fifth-year program, master's, or doctoral degrees.). The population for secondary data collection was undergraduate and post-baccalaureate students who obtained a standard teacher license in business and marketing education between 1995 and 1999 at the University of Minnesota. The list of graduates was obtained from the Director of Student and Professional Services in the College of Education and Human Development. Seventy-one participants represented graduates from business and marketing education.

The population for postsecondary data collection was Minnesota State Colleges and Universities (MnSCU) technical college instructors in southwestern Minnesota who completed the Introduction to Vocational and Technical Teaching course as part of the Technical Education Series (TES). Five Technical Education Series (TES) courses were required to meet the certification requirements. Individuals who had completed the Introduction to Vocational and Technical Teaching course at the University of Minnesota Twin Cities campus between 1995 and 1999 were included as part of this study. This is the first course required of new teachers seeking initial licensure. Names and addresses were obtained from the Office of Professional Development and Outreach (OPDO) at the University of Minnesota Twin Cities campus.

Four hundred twenty participants were initially identified for the postsecondary population. The area of teaching was not known at the time the surveys were mailed to participants. A question on the survey asked postsecondary participants to identify the area they were licensed or certified to teach. Of the surveys returned, sixteen participants identified business and marketing as their area of teaching. Since it was not known at the time of the mailing how many of the initial 420 participants were business and marketing teachers, the return rate will be based on 100% for postsecondary teachers.

The initial mailing was sent in February 2000, with follow-up mailings in March and April 2000. Attempts were made to locate a more current address for surveys returned non-deliverable. A total of 33 (38%) useable surveys (16 postsecondary and 17 secondary teachers) were received by June 2000. Nine (27%) responded they were no longer teaching (leavers).

Both descriptive and inferential statistics were used to analyze data using SPSS 10.0 software (SPSS Inc., 1999). Data analysis determined whether the two groups (teachers who were stayers or leavers) differ in their reasons to remain in teaching (Borg & Gall, 1989). Significance was tested using Pearson's chi-square to identify differences between respondents who are still teaching (stayers) and those who have left (leavers) the teaching profession. The .05 level was used to determine statistical independence and any areas of differences.

Findings

Demographically, 19 (58%) of the participants were female and 14 (42%) were male. More than half of the population was between 31 and 50 years of age (82%). Educational level attained included 24% had a bachelor's degree, 61% had completed a master's degree, and 15% indicated they were non-degreed or had completed an associate arts/science degree. Of the participants responding, 82% had five years or less teaching experience.

Rating of Education Level Attained

Research question 1 asked, "What was the rating of preparation for highest level of education attained of secondary and postsecondary business and marketing education teachers?" Fourteen (43%) of the participants rated their level of attainment as excellent. Table 1 illustrates the ratings of education preparation level attained.

Table 1
Preparation Rating of Level Attained (n=33)

Education Preparation Rating	Secondary (n=17)	Postsecondary (n=16)	Total
Excellent	4	10	14 (43%)
Good	8	4	12 (36%)
Fair	3	1	4 (12%)
Poor	2	0	2 (6%)
No Response	0	1	1 (3%)

Level of Commitment to Teach

Research question 2 asked, "What was the level of commitment to teach of secondary and postsecondary business and marketing education teachers?" Sixteen (48%) of the participants were extremely committed to teaching after completing their degree or certification requirements. Table 2 illustrates the commitment to teach for secondary and postsecondary teachers.

Rating of First Year Teaching Experience

Research question 3 asked, "What was the rating of first year teaching experience of secondary and postsecondary business and marketing education teachers?" Ten (31%) participants rated their first year teaching as positive, followed by very positive (27%), and extremely positive (24%). Table 3 illustrates the rating of first year teaching for secondary and postsecondary teachers.

Factors Impacting Decision to Leave Teaching

Nine (27%) of those responding indicated they were no longer teaching (leavers). Research question 4 asked, "What factors impact a secondary and postsecondary business and marketing

Table 2
Level Commitment to Teach (n=33)

Level of Commitment	Secondary (n=17)	Post-secondary (n=16)	Total
Extremely Committed	9	7	16 (48%)
Above Average Commitment	5	7	12 (37%)
Some Commitment	3	0	3 (9%)
No Commitment	0	1	1 (3%)
No Response	0	1	1 (3%)

Table 3
Rating of First Year Teaching Experience (n=33)

Rating of First Year	Secondary (n=17)	Post-secondary (n=16)	Total
Extremely Positive	4	4	8 (24%)
Very Positive	3	6	9 (27%)
Positive	7	3	10 (31%)
Somewhat Positive	2	2	4 (12%)
No Response	1	1	2 (6%)

education teacher's decision to leave the teaching profession?" The reasons selected by four (44%) participants was perceived limit on salaries. At least two participants (22%) identified licensure requirements, additional time commitments outside of teaching, institutional climate, lack of job advancement, program/teaching position ended, needed a greater challenge, and pursued advanced degree. At least one participant (11%) identified lack of job security, decided teaching wasn't for me, job-related stress, and classroom management issues as reasons for leaving the teaching profession.

Rating of Skill Level

Research question 5 asked, "Is there a statistically significant relationship between business and marketing leavers and stayers and ratings of skill level at the secondary level? At the postsecondary level?" Participants were asked to rate their current skill level using a Likert-type scale of 1 to 5 representing these levels: 1 = "very poor/nonexistent," 2 = "poor," 3 = "fair," 4 = "good," 5 = "excellent." Secondary participants ranked oral communications (M 4.53) and function within a team environment (M 4.53) as their highest skill level. Postsecondary participants ranked involvement in long-term projects (M 4.94) as their highest skill level. One skill showed a strong relationship between secondary business and marketing stayers and leavers, and practical experience in teaching area ($p = .025$). There were no skills showing a significant relationship between postsecondary teachers. Table 4 illustrates the rating of skill

level for secondary teachers, and Table 5 for postsecondary teachers.

Factors Important to Continue Teaching

Research question 6 asked, "Is there a statistically significant relationship between business and marketing leavers and stayers and ratings of characteristics related to their willingness to continue teaching at the secondary level? At the postsecondary level?" Participants were asked to rate each item as to its importance in determining their willingness to continue teaching. They were to respond on a Likert-type scale of 1 to 4 representing these levels: 1 = "not important," 2 = "somewhat important," 3 = "very important," 4 = "extremely important."

Secondary participants ranked inner sense of knowing I'm doing a good job (M 3.73) as the most important factor to their willingness to continue teaching. Postsecondary participants ranked inner sense knowing I'm doing a good job (M 3.67) and positive teaching experience (M 3.67) as the most important factors. Factored out one by one, there was one factor that showed a strong relationship between secondary business and marketing leavers and stayers. Recognition by supervisors and administrators ($p = .026$) was significant. There were no factors showing a relationship between postsecondary business and marketing leavers and stayers. Table 6 illustrates secondary teacher factors important to continue teaching, and Table 7 illustrates postsecondary teacher factors.

Table 4
Secondary Teachers Rating of Skill Level (n=17)

Skills	<u>M</u>	Chi- Square	df	P
Oral communication skills	4.53	.018	1	.893
Function within a team environment	4.53	.018	1	.893
Written communication skills	4.41	.565	1	.452
Persuasion of others to accept your ideas	4.35	.415	2	.813
Organization and planning	4.29	1.253	2	.534
Supervision and leadership	4.29	.049	1	.825
Integrate technology into the curriculum	4.18	.327	2	.849
Evaluation of ideas and presentations	4.12	3.890	2	.143
Involvement with long-term projects	4.12	2.348	2	.309
Development of new approaches to problems	4.06	.234	2	.889
Conflict resolution	4.06	.234	2	.889
Practical experience in teaching area	3.94	9.358	3	.025*
Knowledge of curriculum development	3.76	5.468	3	.141
Knowledge of teaching methodologies	3.47	4.120	2	.127

Note. *Significant at the .05 level.

Table 5
Postsecondary Teachers Rating of Skill Level (n=16)

Skills	<u>M</u>	Chi- Square	df	P
Involvement with long-term projects	4.94	3.306	2	.191
Oral communication skills	4.50	2.618	1	.106
Function within a team environment	4.44	2.701	2	.259
Written communication skills	4.38	.950	1	.330
Evaluation of ideas and presentations	4.38	.950	1	.330
Supervision and leadership	4.38	2.701	2	.259
Organization and planning	4.31	1.371	2	.504
Development of new approaches to problems	4.19	3.729	2	.155
Persuasion of others to accept your ideas	4.06	1.678	2	.432
Integrate technology into the curriculum	4.06	3.433	3	.330
Practical experience in teaching area	4.00	1.648	2	.439
Conflict resolution	3.81	3.898	3	.273
Knowledge of curriculum development	3.69	3.239	2	.198
Knowledge of teaching methodologies	3.44	2.812	3	.422

Table 6
Secondary Teachers Factors Important to Continue Teaching (n=17)

Factors	M	Chi-Square	df	P
Inner sense of knowing I'm doing a good job	3.73	.642	1	.423
Positive teaching experience	3.60	.721	2	.697
Recognition by students	3.33	3.462	2	.177
Adequate time to complete job tasks	3.27	.875	3	.831
Pleasant working conditions	3.20	2.637	3	.451
Potential for salary advances	3.13	2.308	2	.315
Quality and quantity of resource available	3.00	.598	3	.897
Chance to contribute to important decisions	3.00	1.436	2	.488
Professional development opportunities	2.93	1.587	3	.662
Recognition by supervisors/administrators	2.93	9.231	3	.026*
Leadership opportunities	2.93	.865	2	.649
Perception of job security	2.73	2.637	3	.451
Recognition by peers	2.67	6.346	3	.096
Currency in cooperative learning techniques	2.47	2.981	2	.225
Participation in professional associations	2.40	2.308	3	.511
Approval of family and/or close friends	2.33	2.637	3	.451
Availability of induction/mentoring program	2.07	1.813	3	.612

Note. *Significant at the .05 level.

Table 7
Postsecondary Teachers Factors Important to Continue Teaching (n=16)

Factors	M	Chi-Square	df	P
Inner sense of knowing I'm doing a good job	3.67	.170	1	.680
Positive teaching experience	3.67	.682	2	.409
Quality and quantity of resource available	3.47	.937	2	.626
Recognition by students	3.40	.390	2	.823
Adequate time to complete job tasks	3.40	.390	2	.823
Potential for salary advances	3.40	1.193	2	.551
Pleasant working conditions	3.33	3.068	2	.216
Perception of job security	3.27	3.494	3	.321
Chance to contribute to important decisions	3.27	2.946	2	.229
Recognition by peers	3.20	1.047	3	.790
Professional development opportunities	3.13	3.239	2	.198
Recognition by supervisors/administrators	2.87	3.068	3	.381
Currency in cooperative learning techniques	2.86	2.121	2	.346
Leadership opportunities	2.80	2.216	3	.529
Availability of induction/mentoring program	2.67	1.705	3	.636
Approval of family and/or close friends	2.60	5.455	3	.141
Participation in professional associations	2.53	.937	3	.816

Conclusions

Based upon the findings from this study, the following conclusions were drawn:

1. Participants were extremely committed (48%) to teaching following the completion of their degree or certification requirements. This would be an indicator of their willingness to continue teaching due to their initial level of commitment to teaching.
2. Various factors contributed to reasons secondary and postsecondary business and marketing teachers left the teaching profession. Perceived limit on salaries was listed most frequently by leavers. This is consistent with research conducted by Cole, 1983; Knight & Bender, 1978; Miller, 1974; and Reilly & Welton, 1979. Other factors listed included licensure requirements, institutional climate, additional time commitment outside of teaching, lack of job advancement, program/teaching position ended, need for greater challenge, and the decision to pursue advanced degree.
3. Secondary teacher's overall rating of the 13 skills varied from postsecondary teacher ratings. Involvement with long-term projects was ranked first and had a mean score of 4.94 for postsecondary teachers. This skill was ranked ninth from secondary teachers with a mean score of 4.12. Secondary teachers ranked oral communication skills highest with a mean score of 4.53. Knowledge of curriculum development and knowledge of teaching methodologies ranked 13 and 14 respectively for both secondary and postsecondary teachers.
4. Secondary ($M = 3.73$) and postsecondary ($M = 3.67$) teachers identified the most important factor contributing to their willingness to continue teaching to be "inner sense of knowing I'm doing a good job." Mean ratings for the 17 factors were comparable for both groups. This finding supports Holland's (1973) theory of vocational choice in that teachers who rate themselves higher in abilities, values and professional accomplishments exhibit more satisfaction with their career choice.
5. A teacher's work environment can impact their decision to stay or leave the teaching profession (Holland, 1973). Findings from this study reported the following factors as important to a teacher's willingness to continue teaching (a) positive teaching experience (secondary $M = 3.60$, postsecondary $M = 3.67$); (b) adequate time to complete job tasks (secondary $M = 3.27$, postsecondary $M = 3.40$); and (c) pleasant working conditions, (secondary $M = 3.20$, postsecondary $M = 3.33$). These three factors were rated 7 or higher out of 17 factors.

Recommendations

1. To validate the findings from this research, replication of this study should be conducted to include representation of business and marketing education teachers from secondary and postsecondary levels across the United States. This will ensure a more representative sample and determine if similar findings are reached.
2. Further research should be conducted over the long-range impact of turnover and retention of secondary and postsecondary business and marketing teachers. As teachers progress in the number of years teaching, do reasons identified for leaving the teaching profession change or stay the same?
3. Recent literature has indicated the importance of induction or mentoring programs for new faculty (Lynch, 1996; Kirby & LeBude, 1998). Further research needs to be conducted to determine its importance with both secondary and postsecondary business and marketing education new teachers. Secondary participants from this study ranked availability of induction/mentoring program 17 out of 17 as a factor important to continue teaching, with a mean score of 2.07 on a scale of 4.0. Postsecondary teachers ranked this factor 15 out of 17 with a mean score of 2.67 on a scale of 4.0.

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A Comparison of Workforce Skills Desired by Business Leaders Vs. North Carolina Business Education Standard Course of Study

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Abstract

The purpose of this study was to investigate whether the workforce skills identified by North Carolina Employers as essential for entry-level employees were included in two of the most commonly offered courses of the North Carolina Business Education Standard Course of Study. One null hypothesis was tested, and that hypothesis was rejected. Based upon the data collected and reviewed, a clear pattern was established regarding the status of inclusion or non-inclusion of the skills identified as being essential for entry-level employment in the North Carolina Business Education Standard Course of Study. As a result, the skills identified as being essential were not a major component of two of the most frequently offered courses in the North Carolina Business Education Standard Course of Study.

Introduction

Nearly 2500 years ago, Greek philosopher Heraclitus stated, "There is nothing permanent except change" (Peter, 1977). How amazed would Heraclitus be if he were alive today? The signs of rapid and on-going change are everywhere. It is safe to say that today's society is very different than the society of our fathers and their fathers before them. The recent pattern of rapid change has not only affected the way in which people live but also in the way that they work and the type of career they pursue. Businesses now compete in a global economy by a new set of standards. No longer is it enough to have a strong back and a high school education to get a good paying, blue-collar job. The blue-collar labor jobs of the past are quickly becoming extinct; today's workplace requires an entirely different array of skills and knowledge to be successful. Employers now seek employees that are adaptable and possess the ability to learn and work in teams (Secretary's Commission on Achieving Necessary Skills [SCANS], 1991).

Statement of Problem

Nearly every facet of business ethics, protocol, practices and procedures has been changed or influenced by technology in the last twenty years. "The world has changed. The workplace is changing. But despite their best efforts, most schools have not changed fast enough or moved far enough" (*What Work Requires of Schools: A SCANS Report for America 2000*, U.S. Department of Labor, June 1991). Students must possess the skills required by employers to effectively enter the workforce and be successful. Effectively entering the workforce means possessing

the abilities and skills required of the workplace so that the employee immediately becomes a productive participant in the workplace thus contributing to the profitability and growth of any given company. The purpose of the study was to determine the skills that the largest private-sector employers in each of the 100 North Carolina counties perceived as required for entry-level employment upon completion of secondary education.

Null Hypothesis

The following null hypothesis was investigated: *A significant difference will not exist in the competencies and skills identified by business leaders as needed for successful entry into the workforce and the skills included in the North Carolina Business Education Standard Course of Study.*

Limitations

The following limitations applied to the design and execution of the research study:

1. Since many secondary schools offer a limited curriculum in business education, only the five most popular business education courses from the North Carolina Business Education Standard Course of Study as defined by the North Carolina Department of Public Instruction under direction of the State Board of Education were used.
2. Since individual teaching styles vary greatly the researcher had to rely on the literal interpretation of the VoCATS objectives and competencies to use for comparison.

The Changing Workplace

Much of the recent change in education, specifically vocational education, is a result of reports such as *A Nation at Risk* (1983) and the Secretary's Commission on Achieving Necessary Skills Report (SCANS, 1991). These reports focused a lot of attention on education, specifically as education relates to the preparation of the nation's workforce and the economic implications. More and more young people emerge from high school ready neither for college nor for work (AFT, 1997; *A Nation at Risk*, 1983; STWOA, 1994). More than half of our young people leave school without the knowledge or foundation required to hold a good job (SCANS, 1991). If high school graduates are to make a successful transition from school to the workplace, they must be taught the skills and basic workplace knowledge desired by business leaders and employers. Therefore, standard courses of study for secondary school programs need to reflect both the academic standards prescribed by educators and the workplace knowledge desired by employers of those high school graduates.

Workplace Skills

In America's information-based, skills-intensive economy of the late 20th century and the early 21st century, one thing is clear: knowing is growing. In order to be successful, workers need skills and training that secondary and post-secondary education should provide. Those skills include cognitive (hard) skills and communication (soft) skills (U.S. Department of Labor, 1999). In many instances, there is a mismatch between the skills jobs require and those skill taught by secondary and post-secondary institutions. It seems that America does not face a worker shortage, but a skills shortage. According to the literature, America's educational system has traditionally prepared graduates for the workforce by training them for repetitive tasks rather than tasks requiring the ability to make decisions, to be independent thinkers, and to work as a part of a team. The workplace has, however, entered a new era in that it requires a well educated, skilled workforce in order to meet the challenges confronting business and industry in a global economic environment (Mobley, Joyner, & Peel, 1998).

North Carolina Standard Course of Study

The North Carolina Standard Course of Study mentioned several times in this study continues to be prepared by the Public Schools of North Carolina, under the auspices of the State Board of Education and the Department of Public Instruction. Within the North Carolina Standard Course of Study lie seven program areas. The program areas are as follows: (1) Agricultural Education (2) Business Education (3) Career Development (4) Family and Consumer Science Education (5) Health Occupation Education (6) Marketing Education (7) Technology Education and (8) Trade and Industrial Education. Within each program area are course blueprints, which describe the scope of the curriculum for a given course/program. The blueprints include units of instruction, core competencies in each unit, and specific objectives for each competency. The core competencies explain

what overall component of the specific objective is covered. Specific objectives describe the competency component in more detail. Illustrated in the blueprints are recommended sequences of the units and competencies, the weight and importance of the objective within the course or unit, and the number of hours to be devoted to each. The overall intention of the blueprints is to allow teachers to follow a standard format when planning daily lessons, constructing tests, and planning the course of work for the year.

Research Methodology and Design

The VoCATS blueprint for each course was carefully reviewed by the researcher to identify which skills and competencies were being taught, and whether or not these skills and competencies coincided with the skills identified by Mobley (1998). A matrix developed by Moody (1998) was used to indicate whether or not the business courses offered in most high schools effectively addressed the skills identified by *North Carolina Employers' Perceptions of Essential Skills for Entry Level Employment of High School Graduates: Implications for Educational Leadership* (Mobley, 1998). For an identified workforce skill to be considered as included in a specific VoCATS blueprint objective, the VoCATS object must *explicitly* identify the skill or competency in its description. Furthermore, in order to consider a workforce skill as included in a VoCATS course blueprint, the skill or skills must be effectively addressed in at least 50% of the VoCATS objectives (Moody, 1998). The matrix developed by Moody (1998), was modified by the researcher for use in this study in the following ways:

1. The horizontal axis of the matrix was modified by replacing specific marketing course competencies with the competencies from each selected business course as identified in the respective VoCATS blueprint.
2. The workforce skills listed down the vertical axis were replaced with the essential workforce skills identified by Mobley (1998).

Verification and Validation

To ensure the accuracy of the data, the completed matrixes were reviewed and verified by a third-party panel consisting of an expert in workforce development education, an associate professor in education from a different North Carolina University, and a former college business teacher. Each member of the panel was provided with an instruction sheet, a copy of the researcher-completed matrix for each course, and a VoCATS blueprint for each course used in the study. The panel members were instructed to carefully read each VoCATS course blueprint and compare the researcher's findings reported within the matrix to the associated course blueprint to determine whether they agree or disagree with the researcher's findings. If a panel member agreed with the researcher's findings, the panel member was instructed to check (O) and sign the cover page next to the number and title of the reviewed course. If a panel member disagreed with

the findings of the researcher, the panel member was instructed to circle the box at the location on the matrix where the desired workforce skill and the blueprint competency intersected. The panel member was then asked to write a brief explanation to explain the reason for disagreement. When two or more panel members indicated disagreement in the same location, the researcher reviewed the decision. The researcher then made a final decision accompanied by an explanation of that decision.

Course Selection

Only two of the five most commonly offered courses are addressed in this article—Computerized Accounting I and Principles of Business.

Computerized Accounting I. Computerized Accounting I is designed to help students understand the basic principles of the accounting cycle. Emphasis is placed on analysis and the recording business transactions, preparation and interpretation of financial statements, accounting systems, banking and payroll activities, basic types of business ownership, and an accounting career orientation. Mathematical skills and critical thinking are reinforced. Work-based learning strategies appropriate to this course are school-based enterprises, internships, cooperative education, and apprenticeship. Simulations, projects, teamwork, and FBLA leadership activities, meetings, conferences, and competitions provide opportunities for application of instructional competencies.

Principles of Business. An introductory course that involves the principles and concepts that will be the foundation for future study of business and the management of work projects. Topics of study include basic business principles, management concepts, systems thinking and total quality, and the current environment for business in an international marketplace. Communication skills and basic mathematics concepts are reinforced in this course. Work-based learning strategies appropriate for this course are field trips and job shadowing. Simulations, projects, teamwork, and FBLA leadership activities, meetings, conferences, and competitions provide opportunities for application of instructional competencies.

Analysis of Data

In order to address the previously stated objective of the study, a matrix prepared by Moody (1998) was used to ascertain if the course competencies identified by the North Carolina Business Education Standard Course of Study (VoCATS) concurred with the skills identified by Mobley as being required for entry-level employment in North Carolina. Once skills were identified by Mobley (1998), those skills were compared to the North Carolina Business Education VoCATS Blueprints. The completion of the matrix produced results that allowed the researcher to

identify which of the skills indicated by employers as being required for entry level employment were included in the North Carolina Business Education Standard Course of Study VoCATS blueprints. The matrix also allowed the researcher to identify which of the skills indicated by employers as being required for entry level employment were not included in the North Carolina Business Education Standard Course of Study VoCATS blueprints. The acquisition of the North Carolina Business Education Standard Course of Study VoCATS course blueprints was a two-step process. The first step was to contact North Carolina Business Education State Consultant to obtain the necessary information to determine which Business Education courses were the most commonly offered at the secondary level. The second step involved downloading the identified VoCATS course blueprints from the North Carolina Department of Public Education website.

Table Organization

To analyze and compare the data, a matrix designed by Moody (1998) was used. In the matrix, information was presented describing each of the five selected business education courses and the related competencies for each course. If the competencies included in the business education VoCATS blueprint addressed the skills as identified by North Carolina employers as essential for entry-level employment, an "X" was placed in the intersecting grid box. A blank grid box indicates that the skill identified by North Carolina employers as essential for entry-level employment was not sufficiently addressed by the North Carolina Business Education Standard Course of Study VoCATS blueprint. Overall, if the skills identified by North Carolina employers as essential for entry-level employment (Mobley, 1998) were addressed in 50% or more of the five selected business courses most commonly offered in the majority of North Carolina secondary schools, those skills were considered addressed by the North Carolina Business Education Standard Course of Study (Moody, 1998).

Skills Desired by North Carolina Employers

There are 23 specific competencies in 6 skill categories identified by Mobley (1998) that North Carolina business leaders and employers require for entry-level employment. These categories and their competencies are as follows: **Reading, Writing & Math Skills** (1) understand job-related words, (2) read instruments such as gauges & meters, (3) perform simple math functions; **Communication Skills** (4) listen to presentations, (5) follow instructions, (6) give clear directions, (7) speak in clear sentences; **Critical Thinking Skills** (8) troubleshoot problems, (9) understand problem solving, (10) make independent decisions; **Group Interaction Skills** (11) work well with colleagues, (12) work well with supervisors, (13) work well as a team-member, (14) recognize cultural diversity and (15) gender equality, (16) participate in group discussion, (17) respect other opinions, (18) have a willingness to ask questions; **Personal Development Skills**; (19) exhibit self-esteem; **Employability Skills** (20) demonstrate punctuality, (21) maintain work habits, (22)

take pride in work and (23) maintain quality standards. The skills and competencies identified by employers as being required for entry level employment appear on the left side of the matrix grid. To ascertain which workforce skills required by business identified by Mobley (1998) were currently being taught in either 6311 Computerized Accounting I or 6200, Principles of Business, a matrix developed by Moody (1998) was used. If the skill was addressed by the North Carolina Business Education Standard Course of Study, the researcher placed an "X" where the skill and standard course of study competency intersected.

Course Number: 6311, Computerized Accounting I

Information presented in Table 1 indicates if the skills were or were not addressed by the course competencies. Course competencies addressed in 6311: *Computerized Accounting I* according to the VoCATS course blueprint were: Competency A, *The Accounting Cycle*; Competency B, *Banking and Payroll Activities*; Competency C, *Specialized Accounting Procedures*; Competency D, *Career Preparation*. The letters used to identify the course competencies appear on top part of the matrix grid. Based on information presented in Table 1, the workplace skills needed for entry-level employment as identified by Mobley (1998); were not addressed in Computerized Accounting I.

Course Number 6200: Principles of Business

Information presented in Table 2 indicates if the skills were or were not addressed by the course competencies. Course competencies addressed in 6200: *Principles of Business* according to the VoCATS course blueprint were: Competency A, *Business in a Changing World*; Competency B, *The Consumer's Impact on Business*; Competency C, *Leadership/Communication Skills*; Competency D, *Advancements in Technology*; Competency E, *Money Management and Banking*; Competency F, *Credit*; Competency G, *Savings and Investments*; Competency H, *Insurance*; Competency I, *Careers in Business and Marketing*. The letters once again used to identify the course competencies appear on the top part of the matrix.

grid. Based on information presented in Table 2, the workplace skills needed for entry-level employment as identified by Mobley (1998); were not addressed in Principles of Business.

Summary

Based upon careful analysis of the data collected, a clear pattern was discovered regarding the inclusion or non-inclusion of skills identified by North Carolina employers as essential for entry-level employment (Mobley, 1998) in the North Carolina Business Education Standard Course of Study. Analysis of the data collected suggested that the skills identified by North Carolina employers as essential for entry-level employment of high school graduates (Mobley, 1998) were not included in the North Carolina Business Education Standard Course of Study VoCATS

Table 1

Matrix for Workforce Skills and Business Education Course No:6311 (Computerized Accounting I)

COMPUTERIZED ACCOUNTING I - 6311	6311	6311	6311	6311
Reading, Writing & Math Skills				
1. Understand job-related words	X	X	X	X
2. Read instruments such as gauges & meters				
3. Perform simple math functions	X	X	X	
Communication Skills				
4. Listen to presentations				X
5. Follow instructions	X	X	X	
6. Give clear directions				
7. Speak in clear sentences				X
Critical Thinking Skills				
8. Troubleshoot problems	X	X	X	
9. Understand problem-solving				
10. Make independent decisions				
Group Interaction Skills				
11. Work well with colleagues				
12. Work well with supervisors				
13. Work well as a team-member				
14. Recognize cultural diversity				
15. Recognize gender equality				
16. Participate in group discussion				
17. Respect other opinions				
18. Willing to ask questions				X
Personal Development Skills				
19. Exhibit self-esteem				X
Employability Skills				
20. Demonstrate punctuality				
21. Maintain work habits	X			
22. Take pride in work				
23. Maintain quality standards				

curriculum. Therefore the null hypothesis—*A significant difference will not exist in the competencies and skills identified by North Carolina business leaders as needed for successful entry into the workforce and the skills included in the North Carolina Business Education Standard Course of Study*—was rejected. As a result, the skills identified by North Carolina employers as essential for entry-level employment of high school graduates (Mobley, 1998) were not a major component of the North Carolina Business Education Standard Course of Study VoCATS curriculum. These findings were substantiated through letters of concurrence by the review panel.

Table 2

Matrix for Workforce Skills and Business Education Course No: 6200 (Principles of Business)

PRINCIPLES OF BUSINESS - 6200	6200 A	6200 B	6200 C	6200 D	6200 0E	6200 0F	6200 G	6200 H	6200 0I
Reading, Writing & Math									
1. Understand job-related words	X	X	X	X	X	X	X	X	X
2. Read instruments such as gauges & meters									
3. Perform simple math functions	X	X			X	X	X	X	
Communication Skills									
4. Listen to presentations									
5. Follow instructions					X	X			
6. Give clear directions									
7. Speak in clear sentences			X		X	X			
Critical Thinking Skills									
8. Troubleshoot problems			X					X	
9. Understand problem-solving		X	X					X	
10. Make independent decisions	X	X	X	X	X	X	X	X	
Group Interaction Skills									
11. Work well with colleagues			X						
12. Work well with supervisors			X						
13. Work well as a team-member			X						
14. Recognize cultural diversity									
15. Recognize gender equality									
16. Participate in group discussion			X		X	X	X		
17. Respect other opinions			X		X	X			
18. Willing to ask questions			X		X	X			
Personal Development Skills									
19. Exhibit self-esteem			X						
Employability Skills									
20. Demonstrate punctuality									
21. Maintain work habits			X		X				
22. Take pride in work			X		X				
23. Maintain quality standards			X		X				

Conclusions, Recommendations, and Implications

The following conclusions, recommendations, and implications are presented based on the data gathered in this study.

Conclusions

The following conclusions were derived from the findings of this study:

1. The skills identified by North Carolina employers as essential for entry-level employment of high school graduates do not coincide with the skills and competencies included in the VoCATS blueprints for the most commonly offered courses of the North Carolina Business Education Standard Course of Study.

2. North Carolina employers, business educators, and the developers of the North Carolina Business Education Standard Course of Study may have misconceptions about the actual skills that are essential for entry-level employment of high school graduates.

Recommendations

The following recommendations are based on the findings and conclusions of this study:

1. Developers of business curriculum should review the skills identified by employers as being essential for entry-level employment of high school graduates and revise the North Carolina Business Education Standard Course of Study to include these skills in the most commonly offered business courses.

2. North Carolina business leaders, business curriculum developers, and business educators need to establish an ongoing dialog to ensure that the best possible education is consistently provided to high school students to prepare them for eventual entry-level employment.
3. Since business education is primarily considered to be education for business and about business, business leaders should have more influence and control in the development of business education curriculum.
4. Business education curriculum should be revised frequently to accommodate today's rapidly changing business environment with respect to the development of a global economy.

Implications

The following implications are based on the findings, conclusions, and recommendations of this study:

1. Business and industry has traditionally been the primary consumer of human capital produced by public education. In the past business and industry has obtained its human capital from a workforce supplied by local education. Yet, with today's global economy, human capital has become more transient. Therefore, it is no longer enough that students be educated solely for the purpose of local business and industry, but now must also be taught workforce skills that are more widely accepted and transferable.
2. The rapid pace of technology development has caused a shift in the focus of business courses offered at the secondary level to a curriculum that is disproportionately heavy in technology and computer based instruction. If business education becomes synonymous with computer education, then business education is no longer educating students about business for business, but more simply creating computer literate students who actually know very little about business or how to apply their computer skills in a real business situation.
3. In the progression of business education towards a computer based curriculum education is ignoring the needs of the primary consumer of education, business and industry. Advisory committees consisting of local community and business leaders are no longer being effectively utilized as in previous years when mandated by vocational legislation. In many cases these links to business and community have disappeared altogether. It is impossible to educate for business and about business if there is not an ongoing relationship or dialog with business lead-

ers to keep abreast of ever-changing workforce needs (Warren, 1998).

4. The graduation requirement of computer competency by the North Carolina Department of Public Instruction has caused most public high schools to offer a disproportionate number of computer-based courses, in place of more traditional non-computer based business courses. For example, courses such as Business and Financial Management, Business Law, Business Management, and Advanced Business Studies are not selected as course offerings as often as computer-based courses at the secondary level.
5. A lack of communication or constructive dialog apparently exists between employers and business curriculum developers concerning business education curriculum content.
6. Currently the North Carolina Business Education Standard Course of Study is reviewed and revised every five years with the actual revision or reforms taking up to seven years to be printed and distributed. Simple observation of technology development and business evolution is evidence enough that curriculum needs to be revisited more frequently than every five years. Revisions to curriculum should be done as frequently as the evolution of business norms and practices require or dictate. "...our workplaces are undergoing rapid change. So are American workers. Technology, globalization and new demographics are constantly redefining work" (Herman, 1999).

Summary

As America enters the 21st Century, today's workforce will be quite different from tomorrow's workforce. The impact of low productivity, skilled and unskilled workers, and changing workplace demographics will continue to be felt throughout America's economy. Thus, America's educational community will be in a good position to positively affect tomorrow's workforce. According to the literature and the findings, business and industry will need problem-solvers, critical thinkers, and cooperative and responsible workers, and highly skilled, multi-talented employees (Stitt-Gohdes, 1996). Therefore, workforce development education must provide educational opportunities that will prepare students for tomorrow's workplace today. In order to provide these educational opportunities, workforce development educators will need to understand what skills business and industry require for entry-level employment as well as which of those skills required for entry-level employment are currently in the North Carolina Business Education Standard Course of Study. After all, today's students will become a member of tomorrow's workforce. In order to be gainfully employed, those students will need specific workplace skills to be successful in the 21st Century.

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An Exploration of Self-Directed Learning: A Description of Undergraduate Introduction to Business Students

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Abstract

The study described the self-directed learning level within Introduction to Business students. The study specifically described the participants on selected demographics and business education students on selected personal, social, and environmental variables using the Bartlett-Kotrlik Inventory of Self Learning (Formal Classroom Version). This instrument has not been used in the formal school setting and was modified for this use. The internal consistency was estimated with Cronbach's alpha at .92. The students overall self-directed learning would be interpreted as seldom true of these students.

Introduction to Self-Directed Learning

The use of self-directed learning has grown in adult education since Knowles (1975) introduced androgogy. While teaching course content many teachers try to address learning styles and difference among students. One common need that all individuals have when they leave a formal classroom is to be able to continually learn. Providing students with opportunities to control their own learning will provide them with an opportunity to develop the skills for continual learning and can be transferred to the workplace. When students leave the classroom, they will need these types of skills to be successful in a workplace that is requiring continual learning.

Most educators would like their students to become life-long learners. In 1975, Knowles had the visions to foresee that education should teach students how to learn and become self-directed learners. Today, with the changing paradigm of creating student centered rather than teacher centered classrooms, integrating this self-directed learning approach is becoming more natural.

Self-Directed Learning in Business Education

Studies have described that self-directed learning as a method used by business educators for learning and staying current with technology (Bartlett & Kotrlik, 1999a, 1999b, & 2000; Redmann, Kotrlik, Harrison, & Handley, 1998; 1999; Stipp, 1997; McEwen, 1996). These studies show that business teachers use self-directed learning as a personal tool to stay current in the workplace. Students must also be taught these skills to stay current in the workplace once they leave the university setting. With this being evident, teachers must start to examine how and if it is feasible to implement more self-directed learning activities to prepare students for the future workplace. Even though Candy (1991) states that learning in a natural work setting, autodidaxy, is different than learning in a formal classroom setting, it is only natural that many of the skills are transferable.

Researcher's have sought to examine self-directed learning levels in the formal classroom setting. In the classroom setting, the instructional method can create either a self-directed or other directed learning experience. Millar, Morphet, and Saddington (1986) developed a model that shows the learner-control continuum. This model shows that the more control the teacher exercises the less self-directed the experience becomes for the students.

Self-directed learning relates to personal, social and environmental variables. The Oddi Continuing Learning Inventory (1984) and Guglielmino's Self-Directed Learning Readiness Scale (1977) do not appear to incorporate these categories within their instrument. Ravid (1987) notes "self-directed learning does not take place in a vacuum. The character of the organization's internal work environment has been long recognized as influential" (p. 5). The importance of the environment is identified again when Spear (1988) states, "To understand self-directed learning without reference to environment ignores both important research and common-sense" (p. 207). When viewing self-directed learning in the workplace, Bartlett and Kotrlik (1999) developed the Bartlett-Kotrlik Inventory of Self-Learning which examined environment.

Practical justification for studying self-directed learning is examining how it associates with the increasing need for continual learning in a complex world, rapidly changing society, and the consequences of disregarding the study of self-directed learning (Long, 1992). The formal classroom is not the only place that is concerned with self-directed learning. Business and industry are reporting interest to self-directed approaches to learning, worker empowerment, and self-directed team (Wellens, Byham, & Wilson, 1991).

Senge (1990) initiated a shift of business and industry into learning organizations. Watkins and Marsick (1993) have supported the importance of the development of learning organizations for business to stay competitive. However, in a recent interview

with O'Neil (1995), Senge maintains that most schools are not operating as learning organizations. Teachers need to be able to continually learn, and the organization or environment must support this learning. Studies have examined self-directed learning and have showed that business educators are using numerous resources when they pursue self-directed learning (Stipp, 1997 & Bartlett, 1999). Even though research has examined the self-directed learning levels of business educators, there has been a lack of empirical research that is examining self-directed learning levels of business students.

Purpose of the Study

The purpose of the study was to describe the students self-directed learning level within a classroom setting. The specific objectives were to:

1. Describe the participants on selected demographics variables including gender, class rank, ethnicity, age, and marital status.
2. Describe business educators on selected personal, social, and environmental variables using the Bartlett-Kotrlík Inventory of Self Learning (formal classroom setting).
3. Describe the reliability of the factors in the Bartlett Kotrlík Inventory of Self-Learning.

Methodology

Participants

This study sought the use of a purposeful non-probability sample. The participants for this study were enrolled in three sections of Introduction to Business. Participants in this study were located in a Master's Comprehensive University as classified by the Carnegie Foundation for Education.

Instrumentation

In this study, the Bartlett-Kotrlík Inventory of Self-Directed Learning (Version for Formal School Setting) was administered. Prior reliability scores on the BISL have been reported at .91 (Bartlett, 1999). This instrument has not been used in the formal school setting and was in development during the time of the study. With other groups the instrument had estimates of internal consistency above "commonly used criterion level of .70" (Conti & Fellenz, 1986, p. 74), which shows instrument reliability.

The demographic sheet collected data concerning the participants gender, age, class level, ethnicity, number of college of business courses taken, preference for computers, and marital status. All demographic variables have been shown to have relevance to self-directed learning. Data was collected by administering the survey to three sections of an introduction to business.

Data Analysis

Descriptive statistics were used to describe the business students on the demographic, personal, social, and environmental variables and the self-directed learning level according to the Bartlett-Kotrlík Inventory of Self-Learning (version for a formal classroom setting). The demographic variable of age is continuous and reported by using means and standard deviations. Class rank is an ordinal variable that was reported using frequency and percent. Race and marital status are categorical variables that were reported using frequency and percent. Preference for computers and gender are dichotomous nominal variables and were reported as frequency and percent. Bartlett-Kotrlík Inventory of Self-Learning individual items are ordinal variables that were treated as interval and total score was reported using means and standard deviations. This data was treated as interval data and was reported using means and standard deviations.

Results

Of the 85 participants, 41 (48.2%) were female, 43 (50.6%) were male, and 1 (1.2%) did not report gender. The majority of the participants were freshman ($n=51$, 60.0%), followed by 26 (30.6%) sophomores, 3 (3.5%) juniors, 3 (3.5%) seniors, and 2 (2.4%) did not report their standing. Of the students the majority 58 (62.8%) took only one business course, 6 took 2 (7.1%) courses, 7 (8.2%) 3 courses, 10 (11.8%) took 4 or more course, and 5 (5.9%) did not respond.

Of the students, 77 (90.6%) were Caucasian, 2 (2.4%) were African American, 2 (2.4%) did not respond, and Asian, Hispanic, Native American, and the group other all had 1 (1.2%) individual in them. Of the students, 31 (36.5%) prefer computer courses and 2 (2.4%) did not respond. All students were single. The students were 19.13 ($SD=1.17$) years of age.

Table 1 shows that the highest scales were self-efficacy for learning and performance ($M=5.86$, $SD=.77$), attitude towards technology ($M=5.62$, $SD=1.42$), extrinsic motivation ($M=5.51$, $SD=1.10$), and intrinsic motivation ($M=5.44$, $SD=1.01$). The lowest scales were others ratings and time management. The overall time management and extrinsic motivation scale had the lowest internal consistency. All other scales were above .70 the generally acceptable criteria for reliability (Letwin, 1995). The overall score on the BISL was 5.36 ($SD=.66$) interpreted as being seldom true of me.

Conclusions

Objective one was to describe the participants on selected demographic variables including gender, class rank, ethnicity, age, and marital status. The participants were both male and female, with the majority being freshman and Caucasian. All of the participants were single.

Table 1

Minimum, Maximum, Mean, Standard Deviation and Cronbach's Alpha for BISL and BISL Sub-Scales

Scales	Cronbach's Alpha	Minimum	Maximum	M	SD
Self-efficacy for Learning and Performance	.91	1.71	6.93	5.86	.77
Attitude Towards Technology	.96	1.00	7.00	5.62	1.42
Extrinsic Motivation	.66	2.33	7.00	5.51	1.10
Intrinsic Motivation	.81	2.00	6.75	5.44	1.01
Goal Setting	.90	1.00	7.00	5.36	.95
Help Seeking	.89	1.00	7.00	5.32	1.23
Peer Learning	.76	2.25	7.00	5.11	1.01
Supportive Environment	.88	1.83	7.00	5.07	.99
Others Rating	.78	2.50	6.50	4.87	1.03
Time Management	.61	2.43	6.00	4.30	.71
BISL Total	.92	2.54	6.41	5.36	.66

Note. Scale for the Bartlett-Kotrlík Inventory of Self Learning is as follows: 1-not true of me most of the time, 2-often not true of me, 3-seldom not true of me, 4-undecided, 5-seldom true of me, 6-often true of me, and 7-true of me most of the time.

Objective two was to describe business educators on selected personal, social, and environmental variables using the Bartlett-Kotrlík Inventory of Self Learning (formal classroom setting). Self-efficacy for learning and performance, attitude towards technology, extrinsic motivation, and intrinsic motivation were the highest sub-scales. The lowest sub-scales were others ratings and time management. The overall score on the BISL was interpreted as being seldom true of the introduction to business students.

Objective three was to describe the reliability of the factors in the Bartlett-Kotrlík Inventory of Self-Learning. The overall reliability of the instrument was above the common criteria of .70 however, the extrinsic motivation and time management scale both need further development.

Implications

With this group of introduction to business students their time management skills could be development to help them be more suited for self-directed learning. Also, with this group of students improving the supportive environment to enhance the self-directed learning would raise the students self-directed learning level. The students are motivated to learn for extrinsic rewards and intrinsic rewards. The demographics of this group represent the traditional post secondary student. With this group the students appear to have reported it is seldom true of them to have self-directed learning skills.

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Frequent Language-Mechanics Errors Made in Manuscripts Submitted to *The Delta Pi Epsilon Journal*

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Abstract

An analysis of language-mechanics errors was conducted in ten randomly selected manuscripts submitted for publication consideration to *The Delta Pi Epsilon Journal* in 1999. The most frequently made errors of manuscript authors involved the use of commas in introductory phrases; the erroneous insertion of commas; hyphenating compound adjectives; subject-verb agreement; and word-choice errors involving relative pronouns, prepositions, compound words, and missing word(s). Recommendations for manuscript authors and graduate-level business education faculty are presented.

Introduction

An error analysis was conducted to determine the most frequently made errors in manuscripts submitted for publication consideration to *The Delta Pi Epsilon Journal* in 1999.

Purpose of the Study

One aspect of this investigation was to identify frequently made language-mechanics errors in order to provide prospective authors with information that will help them to prepare better quality manuscripts. In addition, the results of the study may provide useful information to instructors of graduate-level business education related courses.

Need for the Study

Although a review of the literature revealed studies of writing errors made by students and business professionals, no study was unearthed that analyzed writing submitted to professional journals. Since faculty are faced with increasing pressure to publish, the results of this study may provide insight into the types of errors that authors frequently make. Paying attention to the study results might lessen the incidence of these errors in submitted manuscripts and decrease the number of revisions necessary to make manuscripts publishable, which benefits both authors and journal editors.

Literature Review

The role of good writing in manuscript acceptance was underscored by John McComb (Schoenfeld & Magnan, 1994), an editor of *The Journal of Communication Inquiry*. He wrote, "The paper that needs less work, less language repair, is more likely to get an acceptance" (p. 364).

Schoenfeld and Magnan (1994) identified seven *deadlies* that contribute to poor academic writing. These errors include the verbose, the hackneyed, the passive, the convoluted or run-on sentences, the accent on the negative, the dangling modifiers, and the use of an indistinct *this*. In addition, four punctuation rules were recommended for providing traffic control in a manuscript: using a comma before a conjunction when introducing an independent clause, using a semicolon to connect independent clauses, using a colon after an independent clause to introduce a list, and using dashes to emphasize an interruption.

Williams, Scriven, and Wayne (1991) investigated the misuse of similar words that are confused by business communication students. Martin and Ranson (1990) studied the spelling skills of business students. They found that better spellers tended to have higher grade point averages, to rank higher in their graduating class in high school, to be female, and to work fewer hours outside the home than did poorer spellers.

McCannon and Crews (1999) surveyed 187 business communication faculty who were members of the Association for Business Communication. According to these business communication faculty, the top-five grammatical errors made by business communication students involved subject-verb agreement, sentence fragments, pronoun-antecedent relationships, lack of parallel structure in items in a series, and incorrect word choice. The top-five punctuation errors of business communication students as identified by these business communication faculty were run-on sentences, comma splices, no comma after long introductory elements, possessive apostrophe errors, and no commas in compound sentences.

According to Zacharias Rosner ("Top 10 Grammatical," 1991) of The Grammar Group, the most frequent written business communication error is comma misplacement. In a ranking of

the top-ten grammatical errors of business, the two most common errors involved pronoun usage and the next three errors involved word choice. The remaining five errors involved ordinal number usage, spelling, other word-choice problems, and subject-verb agreement.

While a review of the literature yielded studies about the language-mechanics errors of students and business employees, no study examined the errors made in manuscripts submitted for publication by academicians.

Methods

Twenty-five manuscripts were submitted to *The Delta Pi Epsilon Journal* in 1999 for publication consideration in regular issues. Of these, ten manuscripts were randomly selected for inclusion in the study. Anonymity of manuscript authors was maintained to avoid the possibility of embarrassing them.

For each of the ten manuscripts, three pages of text were randomly selected for error-analysis purposes. A total of 30 manuscript pages were studied to keep the number of identified errors manageable. Eight major language-mechanics categories were used for classifying errors: punctuation, hyphenating and dividing words, capitalization, number usage, grammar and usage, word choice, seriation, and ellipsis usage.

Error Subcategorization

In the punctuation category errors were grouped for commas (introductory prepositional phrases, series, unnecessary comma insertions, required commas missing, compound sentences, comma splices, introductory dependent clauses, dates, and parenthetical expressions), colons, periods (missing and misplaced), quotation marks, apostrophes, and ampersands.

For the category of hyphenating and dividing words, errors in hyphenating words involved compound adjectives and inappropriate hyphenations. Capitalization errors were classified as unnecessary capitalization or required capitalization. Errors in the number-usage category concerned choosing between word and digit expressions.

Grammar and usage errors were divided among pronoun-usage, parallelism, dangling-construction, subject-verb agreement, fragment, and verb-tense errors. Word-choice errors were found in the subcategories of preposition choice, relative-pronoun choice, missing word(s), conjunctions, compound words, awkward syntax, incorrect forms of expressions, and unnecessary words. Seriation errors reflected the use of numbers rather than lower-case letters within parentheses for multiple related items within a paragraph. Ellipsis errors consisted of various types of erroneous use.

Data Analysis

The 30 sampled manuscript pages were scrutinized for violations of applicable rules as set forth in *HOW 8: A Handbook for*

Office Workers and the Publication Manual of the American Psychological Association (4th ed.). When errors were found, they were marked, classified, and recorded on an Excel spreadsheet.

Findings

A total of 231 language-mechanics errors were found in the eight categories as shown in Table 1. The most frequent errors involved punctuation, hyphenating and dividing words, word choice, and capitalization.

Table 1
Frequently Made Language-Mechanics Errors

Error category	No. of occurrences
Punctuation	85
Hyphenating and dividing words	67
Capitalization	25
Number usage	3
Grammar and usage	9
Word choice	36
Seriation	4
Ellipsis usage	2
Total	231

Punctuation Errors

Punctuation errors were classified into the subcategories of commas, colons, periods, quotation marks, apostrophes, and ampersands. The breakdown of the number of errors in each category as well as the number of manuscripts displaying the specific types of punctuation errors is indicated in Table 2.

Table 2
Punctuation Errors

Error category	No. of occurrences	No. of manuscripts
Commas	53	10
Colons	2	2
Periods	2	1
Quotation marks	14	5
Apostrophes	13	6
Ampersands	1	1
Total	85	

Comma errors were classified into the subcategories of introductory prepositional phrases, series, unnecessary comma insertions, required commas missing, compound sentences, comma splices, introductory clauses, dates, and parenthetical expressions. As indicated in Table 3, the most frequent comma error was that of unnecessary comma insertions followed by introductory prepositional phrases, both of which were found in eight of the ten manuscripts examined. For introductory prepositional

phrases the requirements for a comma are five or more words or a verbal.

Table 3
Comma Errors

Error category	No. of occurrences	No. of manuscripts
Introductory prepositional phrases	13	8
Series	2	2
Unnecessary comma insertions	25	8
Required commas missing	5	3
Compound sentences	1	1
Comma splices	1	1
Introductory dependent clauses	1	1
Dates	1	1
Parenthetical expressions	4	3
Total	53	

Hyphenating and Dividing Words

Hyphenation and word-division errors were classified into the subcategories of compound adjectives and inappropriate hyphenations. A total of 67 errors were made in hyphenating and dividing words. As indicated in Table 4, the 67 errors found in nine of the ten manuscripts primarily involved errors in the hyphenation of compound adjectives.

Table 4
Hyphenation and Word-Division Errors

Error category	No. of occurrences	No. of manuscripts
Compound adjectives	62	9
Inappropriate hyphenations	5	2
Total	67	

Capitalization

Capitalization errors were classified into the subcategories of unnecessary capitalizations and required capitalizations. As indicated in Table 5, most of the errors involved unnecessary capitalizations.

Table 5
Capitalization Errors

Error category	No. of occurrences	No. of manuscripts
Unnecessary capitalizations	22	4
Required capitalizations	3	2
Total	25	

Number Usage

The number-usage expression errors concerned choosing between word and digit expressions. All three number-usage errors made in three different manuscripts involved using digits rather than writing out the expression *twenty-first century*.

Grammar and Usage

Grammar and usage were classified into the subcategories of pronouns, parallelism, dangling constructions, subject-verb agreement, fragments, and verb tenses. As indicated in Table 6, four of the nine errors were made in subject-verb agreement.

Table 6
Grammar and Usage Errors

Error category	No. of occurrences	No. of manuscripts
Pronouns	1	1
Parallelism	1	1
Dangling constructions	1	1
Subject-verb agreement	4	4
Fragments	1	1
Verb tenses	1	1
Total	9	

Word Choice

Word-choice errors were classified into the subcategories of prepositions, relative pronouns, missing word(s), conjunctions, compound words, awkward syntax, incorrect forms of expressions, and unnecessary words. As indicated in Table 7, 30 of the 36 word-choice errors involved prepositions, compound words, missing word(s), and relative pronouns.

Table 7
Word-Choice Errors

Error category	No. of occurrences	No. of manuscripts
Prepositions	9	4
Relative pronouns	6	5
Missing word(s)	7	4
Conjunctions	1	1
Compound words	8	4
Awkward syntax	1	1
Incorrect forms of expressions	1	1
Unnecessary words	3	
Total	36	

Seriation

One manuscript contained four seriation errors. These errors involved the usage of numbers rather than letters within parentheses for seriation within a paragraph.

Ellipsis

One manuscript contained two errors involving the erroneous use of the ellipsis. In the first instance the author(s) erroneously inserted an ellipsis before a direct quotation. In the second instance the author(s) erroneously inserted an ellipsis at the end of a direct quotation.

Conclusions and Discussion

All of the manuscripts examined in this research study contained errors in comma usage. This finding reinforces the work of Rosen ("Top 10 Grammatical," 1991) that identifies the misplaced comma as the most common error in written business communications. Since eight of the manuscripts contained errors in the erroneous use of commas and in the punctuation of introductory prepositional phrases, these topics need to be carefully studied by manuscript authors. Additionally, nine of the ten manuscripts contained errors in the hyphenation of compound adjectives, which suggests that manuscript authors need to study this topic carefully as well.

In the grammar and usage category, four manuscripts displayed errors in subject-verb agreement. Manuscript authors need to review this topic, too. Interestingly, this finding confirms the results of other studies (McCannon & Crews, 1999; "Top 10 Grammatical," 1991).

In the area of word choice, five manuscripts contained errors in the use of relative pronouns. In five instances relative pronoun errors occurred when *which* was used instead of *that* to introduce restrictive or essential clauses. One instance concerned the use of *that* instead of *who* to refer to people. Manuscript authors need to review this topic, being careful to choose the most appropriate relative pronouns given their contexts.

Four manuscripts contained errors in the use of compound words. All of these instances occurred when the author(s) treated a compound word as two separate words, changing the actual meaning in the process.

The incidences of missing words in four manuscripts may be attributed to inappropriate speed during manual proofreading rather than to lack of knowledge. Preposition errors in five cases concerned the use of *on* instead of *about*. In two cases *in* was used instead of *about*. These errors suggest the inability of some authors to discern the most appropriate circumstances for using common prepositions.

It appears that the language-mechanics principles that authors of manuscripts submitted to *The Delta Pi Epsilon Journal* need

to review and master include use of commas in introductory prepositional phrases; when to insert commas; hyphenating compound adjectives; subject-verb agreement; and word choice involving relative pronouns, prepositions, compound words, and missing word(s). Many authors are not as skilled in using the English language to enhance their messages as would be desirable. They need to work to reduce the number of language-mechanics errors since these errors detract from their messages and their personal credibility as authors and as well-educated business teachers.

Recommendations

Recommendations are presented for two stakeholders: manuscript authors and graduate-level business education faculty.

Recommendations for Authors of Manuscripts Submitted to The Delta Pi Epsilon Journal

Language-mechanics errors can distort meaning and detract from the credibility of the message and the author(s). As a result, manuscript authors should consider the frequent language-mechanics errors identified in this study and strive to reduce—ideally eliminate—their incidence in research reports. Not only will this practice speed up the publication cycle by reducing the number of revisions necessary for publication, but also this practice will contribute to enhanced professional reputations for the authors. Review and mastery of the appropriate language-mechanics principles will result in the creation of higher quality manuscripts and increase the likelihood of their publication.

Recommendations for Faculty Teaching Graduate Business Education Courses

Based upon the results of this study, graduate-level business education faculty should emphasize the importance of correct language mechanics in manuscript preparation. Although a research study may be well executed and have relevant findings for business educators, the report of the research results needs to communicate clearly the intended message to the targeted audience. Mastery of not only the fundamentals but also the intricacies of language mechanics aids in both a more accurate and timely dissemination of research that is critical to professionals working in a discipline undergoing rapid change.

Although class time may not be available for a thorough review of language-mechanics topics at the graduate level, faculty can refer students to appropriate texts, on-line tutorials and web sites, and writing centers for remediation designed to improve their language-mechanics skills. For example, appropriate sections of *HOW 9: A Handbook for Office Workers* (Clark & Clark, 2001) can be reviewed. The software program *POWER: Professional Writer's Electronic Resource* (Guffey, Clark, & Clark, 1998) contains the complete reference guide to *HOW 8* as well as interactive lessons and exercises designed to develop mastery of language-mechanics principles. Further, many colleges and universities have writing centers that can assist students in im-

proving their understanding and application of language-mechanics concepts.

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Interrelationships Among Managerial Communication, Attitude, and Behavior

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Abstract

Do managers behave in compliance with their managerial attitudes? How do communication, experience, gender affect managerial attitudes and behaviors? To test the hypotheses, a one-group pretest-posttest design was used in an MBA class at an AACSB accredited college of business. Eighty-one students, who have varied years of work and managerial experiences, participated in the study. The findings indicate that (a) without an effective communication system in place, managers do not behave in compliance with their managerial attitudes; (b) effective communication has a significant positive effect on managerial behavior change; and (c) managers' gender and experiences do not significantly affect their managerial attitudes and behaviors.

Introduction

Social psychologists argue that attitudes do predict many forms of social behaviors across a wide range of contexts (Baron & Byrne, 1994, p. 137). However, research findings have not always supported this assumption, and the difficulty of finding a strong, predictive relationship between attitudes and behaviors has turned into one of the greatest controversies in the social sciences (see, for example, Fazio & Williams, 1986; Kim & Hunter, 1993; Kahle, Klingel, & Kulka, 1981; Wicker, 1969).

Similarly, in the work environment, many managers believe that work is a source of satisfaction to people and average people like to take responsibility and work hard. These managers also believe such managerial attitudes shape their behaviors in daily business management. However, not few workers complain that their managers express such managerial attitudes only in words; in deeds, they still practice micromanagement to closely control and direct their subordinates, thereby hindering subordinates' ingenuity and creativity (see, for example, Colvin, 2000; King, 1991; Saylor, 1992).

Therefore, a need exists for investigating why managers' behaviors are not consistent with their managerial attitudes. Based on the review of related literature, one assumption was made that the managerial attitude-behavior relationship depends on managerial communication. The more effective a communication system exists between a manager and his or her subordinates, the more consistent a manager's attitude is with his or her behavior. To test this assumption, the following research question and hypotheses were addressed.

Research Question and Hypotheses

The research question addressed in this study was to examine how communications between a manager and his or her subordinates affect the manager's attitude and behavior. To answer this question, five hypotheses were tested:

- H1: Managers' behaviors are in compliance with their managerial attitudes.
- H2: Effective communication system positively affects managerial attitudes and behaviors.
- H3: Work-experience difference significantly affects managerial attitudes and behaviors.
- H4: Managerial-experience difference significantly affects managerial attitudes and behaviors.
- H5: Gender difference significantly affects managerial attitudes and behaviors.

Purpose of the Study

The purpose of the study was to provide empirical findings that can serve as a theoretical basis for recommending proactive strategies that managers need in their daily business operations. In addition, business educators would be able to incorporate the findings and proactive strategies into their management and communication training programs.

Review of Related Literature

To clarify the research question and hypotheses, a review of related literature was conducted in the areas of (a) management theories, (b) managerial communication, and (d) attitude-behavior relationship.

Management Theories

Management theories are divided into two distinct groups: classical and modern theories. Classical theories became popular in the early 20th century when the Western world entered the industrial age, and they were represented by Bureaucracy Theory (Weber, 1909/1948), Scientific Management (Taylor, 1911), and Administrative Theory (Fayol, 1916/1949). These theories focused on identifying the most efficient and mechanical ways, such as the time-and-motion approach, division of labor, and treating workers like machines or oxen, to maximize organiza-

tional productivity. Although the classical theories increased organizational productivity dramatically in the early years of the 20th century, the workers in the world responded furiously and violently to such theories and practices (Colvin, 2000).

In reaction to the inhuman classical theories, modern management theories were introduced since 1930s with the writings of the Human Relations Theory (Follett, 1925/1971; Mayo, 1933), Theory X and Theory Y (McGregor, 1960), and the Total Quality Management (Deming, 1982, 1986; Juran & Gryna, 1980). Follett (1925/1971) and Mayo (1933) pointed out that the authoritarian, inhuman classical theories were degrading to the human spirit and counterproductive to the interests of employees, management, and companies. They suggested strategies for improving organizational productivity by empowering employees and increasing employee satisfaction to achieve their human potential.

McGregor (1960) summarized the classical theories as Theory X and the human relations theory as Theory Y. He indicated that managers run their organizations based on their attitudes toward human nature. Theory X managers believe that people generally dislike work, and average people like to avoid responsibility and have little ambition; therefore, they must be controlled and directed. By contrast, Theory Y managers believe that work is a source of satisfaction to people. People are capable of self-direction and do not like to be controlled. Average people like to take responsibility and have the capacity to exercise creativity in problem solving.

Total Quality Management (TQM) philosophy (Deming, 1982, 1986; Juran & Gryna, 1980) stresses a systematic, integrated, consistent, organization-wide perspective involving everyone and everything. TQM emphasizes the use of cross-level and cross-functional teamwork, effective communication, process-control analysis, and statistical tools to reach the continuous improvement in processes, products, and services, thereby resulting in the total satisfaction for both internal and external customers. Furthermore, TQM advocates the development of long-term relationships between management and line workers, suppliers and buyers, companies and customers.

Managerial Communication

Managers often face three different environments for decision making and problem solving in organizations—certainty, risk, and uncertainty (Schermerhorn, 1993). In a *certain* environment, information is sufficient for the problem solver to know the possible alternatives and the results of each. Few managerial problems occur in such an ideal environment. In a *risky* environment, the problem solver lacks sufficient information on the possible solutions and their consequences but does have *some* sense of the probabilities associated with their occurrence. This is a fairly common decision environment for managers. When information is so poor (that is, so highly equivocal) that manag-

ers are unable even to assign probabilities to the likely outcomes of possible alternatives, an *uncertain* environment exists. This is the most difficult environment; therefore, managers have to use communication to reduce uncertainty and generate sufficient information with which to make sound decisions.

Communication is a process of gathering, sending, receiving, and interpreting messages that enables people to generate and share information. Information, therefore, is an outcome of communication that provides people with both a rationale and direction for understanding their environment, coordinating activities, predicting the future, making decisions, and solving problems (Kreps, 1990). Information theorists Shannon and Weaver (1949) referred to information as the *reduction of uncertainty*; that is, something has informational value to the extent that it reduces a receiver's uncertainty and increases the predictability of future events. Thus, information helps to decrease the number of decisions an individual has to make and to increase the certainty with which the individual can direct his or her behavior.

Attitude-Behavior Relationship

Many social psychologists (see, for example, Baron & Byrne, 1994; McPhee & Cushman, 1980; Schuman & Johnson, 1976) defined that an attitude is a consistent tendency to respond evaluatively to an object; a behavior, if it has evaluative implications for an object, is such a response. Therefore, if a person has an attitude at all, his behavior must generally be consistent with it by definition. However, after reviewing 42 experimental studies on the link between attitudes and behaviors, Wicker (1969) concluded that attitudes and behaviors are at best only weakly related, and there is often no relationship between them. In response to Wicker's conclusion, Kelman (1974), McPhee and Cushman (1980), Schuman and Johnson (1976) pointed out that Wicker's conclusion was biased towards those pure laboratory experiments without reviewing more applied studies such as field studies and surveys, which showed the predictability of attitudes to behaviors. Kim and Hunter's (1993) meta-analysis integrated findings from 138 attitude-behavior correlations with a total sample size of 90,908 and showed a strong overall attitude-behavior relationship ($r = .79$) when methodological artifacts were eliminated.

Mealea and Latham (1996) stated that managerial behavior reflects a complicated mixture of what we often refer to as attitudes, which consists of feelings, beliefs, value systems, and predispositions to behave in certain ways. For example, in their study of CEO attitudes, Lewin and Stephens (1994) indicated that an individual's trust in people reflects his or her attitude to the human nature: Are people essentially good or evil, hardworking or lazy, trustworthy or dishonest, generous or stingy? CEOs who believe that human beings are fundamentally good would be less inclined towards micro-supervision. They are more likely to design organizations that emphasize principles of intrinsic motivation.

Researchers (Ajzen, 1971; McPhee & Cushman, 1980) also indicated that information is the source of attitude and behavior change; persuasive, cooperative, competitive, or ambiguous messages can strongly influence attitudes and behaviors.

Methodology

Research Design

Causal relationships in organizational behavioral settings are usually complex. The causal relationship between an independent variable and a dependent variable is better understood if the researcher identifies and measures related moderator variables. Tuckman (1988) recommended including at least one meaningful moderator variable in research designs. Therefore, this design consisted of one independent variable (the managerial communication), three moderator variables (work experience, management experience, and gender), and two dependent variables (managerial attitudes and behaviors). The independent variable is a simulation of a real-life management scenario in which the effective managerial communication was used among the manager and workers in daily business operations. The moderator variable of work experience had two groups: (a) five-year-or-less work experience and (b) six-year-or-more work experience. The management-experience variable had three levels: (a) less than one year, (b) one to three years, and (c) four years or more.

The one-group pretest-posttest design was used in a two-hour class session of a televised MBA course of managerial communication at an AACSB accredited college of business. No control group could be used because this MBA course was a single-section course. The pretest and posttest were used to measure the effect of the independent and moderator variables on the dependent variables while controlling effects caused by extraneous variables (Borg & Gall, 1989). The tests also helped determine differences in each moderator variable, thereby reducing the chances of failing to detect true effects on the dependent variables (Lauer & Asher, 1988; Tuckman, 1988).

The televised MBA course of managerial communication was a required course, which had about half of the students in the stu-

dio and other half at several off-campus satellite TV sites with one-way video and two-way audio. A total of 81 students participated in this two-hour training session. Table 1 shows the demographic profile of the participants.

Research Procedures

In the two-hour session, first, a brief review of management theories and practices was conducted, which ranged from classical theories, such as Bureaucracy (Weber, 1909), Administrative Theory (Fayol, 1916) and Scientific Management (Taylor, 1911), to modern ones like Human Relations Theory (Follett, 1925/1971; Mayo, 1933), Theory X and Theory Y (McGregor, 1960), and Total Quality Management (Deming, 1982, 1986; Juran & Gryna, 1980).

Second, participants took the pretest to measure their pre-existing managerial attitudes and behaviors. The instrument used in the pretest was adapted from King's (1991) managerial behavior and attitude questionnaires. The behavior questionnaire measures how participants behave in 10 representative daily managerial situations. The attitude questionnaire measures managerial attitudes towards Theory X and Theory Y. After completing the questionnaires, participants calculated the scores from the two questionnaires to identify their attitude-behavior consistency degree.

Next, a short training session was conducted to discuss the interrelationships among managerial communication, certainty, attitude, and behavior. Based on the discussion, one scenario was selected for simulation, in which an effective managerial communication system was established between the manager and workers in daily business operations. At the end of the simulation, participants were asked to complete the posttest questionnaires to measure their managerial behaviors and attitudes during the simulation. After completing the posttest, participants calculated their scores, compared posttest scores with those of the pretest. Then, they had their group discussion to share the findings, to address the reasons of their managerial attitude and behavior changes, and to make conclusions. Finally, participants were asked to write a brief summary of their learning experience on the last page of the posttest.

Table 1
Demographic Profile of the Participants (n = 81)

Category	Variables		Total	(%)
Gender	<u>Female</u>	<u>Male</u>	81	(100%)
	31 (38.3%)	50 (61.7%)		
Work Experience	<u>5 years or less</u>	<u>6 years or more</u>	81	(100%)
	35 (43.2%)	46 (56.8%)		
Management Experience	<u>Less than 1 year</u>	<u>1 - 3 years</u>	81	(100%)
	24 (29.6%)	31 (38.3%)		
		<u>4 years or more</u>		
		26 (32.1%)		

Statistical Analysis

The data collected from the pretest and posttest were analyzed by using paired t-test, independent t-test, and analysis of variance for testing the five hypotheses addressed in the study. The participants' learning-experience summaries were analyzed with a descriptive approach.

Findings

The findings of the study are presented in the sequence of (a) the results of the hypotheses testing and (b) the results of the participants' written summaries of their learning experience.

Results of the Hypotheses Testing

H1 stated that managers' behaviors are in compliance with their managerial attitudes. The pretest scores showed that the participants' managerial attitude mean was 30.26 while their managerial behavior mean was 24.79. As the paired-t test results in Table 2 indicated, the difference (5.47) between the managerial attitude and behavior on the pretest was significant ($df = 80$, $p = .000$); therefore, H1 was rejected.

H2 stated that the effective communication system positively affects managerial attitudes and behaviors. The posttest showed that the mean score of the participants' managerial attitudes remained the same (30.26); however, their managerial behaviors

changed to a higher mean score (31.24). The paired t-test in Table 3 indicated that the difference (-.98) between the post managerial attitudes and behaviors was not significant ($df = 80$, $p = .114$), which showed the participants' post managerial behaviors were in compliance with their managerial attitudes when the effective communication system was in place. Furthermore, the paired t-test for difference between pre- and post-managerial behaviors in Table 4 illustrated that the difference (-6.45) between the participants' pre- and post-managerial behaviors was significant ($df = 80$, $p = .000$), which illustrated a significant positive effect of the effective communication on managerial behaviors. Therefore, H2 was supported.

H3 stated that the work-experience difference significantly affects managerial attitudes and behaviors. The independent t-test scores in Table 5 showed no significant difference between the group with 1-5 years of work experience and the group with 6-or-more years of work experience in the pre-existing managerial behaviors and attitudes ($df = 79$, $p = .229$). However, significant differences occurred between the two groups in the post-managerial behavior and attitude ($df = 79$, $p = .007$) as well as in the post- and pre-managerial behaviors ($df = 79$, $p = .050$), which indicated that the effective communication system had more significant impact on the group with more work experience than the group with less work experience. Therefore, H3 was accepted on the condition of the existence of an effective communication system.

Table 2
Paired t-Test for Difference Between Managerial Attitude and Behavior on Pretest

Variables	Mean	Standard Deviation	95% Confidence Interval of Difference	
			Lower	Upper
Attitude Score - Behavior Score	5.47	4.94	4.38	6.56
Variances	$t = 9.969$	$df = 80$	Two-Tailed Prob = .000	

Table 3
Paired t-Test for Difference Between Managerial Attitude and Behavior on Posttest

Variables	Mean	Standard Deviation	95% Confidence Interval of Difference	
			Lower	Upper
Attitude Score - Behavior Score	-.98	5.49	-2.19	.24
Variances	$t = -1.599$	$df = 80$	Two-Tailed Prob = .114	

Table 4
Paired t-Test for Difference Between Pre-Behavior and Post-Behavior

Variables	Standard Mean	Deviation	95% Confidence Interval of Difference	
			Lower	Upper
Pre-Behavior Score - Post-Behavior Score	-6.45	4.48	-7.43	-5.45
Variances	$t = -12.953$	$df = 80$	Two-Tailed Prob = .000	

Table 5
Independent t-Tests for Work-Experience Difference in Managerial Attitude and Behavior

Variables	Work Experience	Number of Cases	Mean	Standard Deviation
Pre-Behavior Score	1-5 years	35	-6.23	5.24
- Attitude Score	6+ years	46	-4.89	4.67
Pooled Variances	$t = -1.21$ $df = 79$		Prob = .229	
Post-Behavior Score	1-5 years	35	-.89	5.19
- Attitude Score	6+ years	46	2.39	5.33
Pooled Variances	$t = -2.77$		$df = 79$	Prob = .007
Post-Behavior Score	1-5 years	35	5.34	5.10
- Pre-Behavior Score	6+ years	46	7.28	3.78
Pooled Variances	$t = -1.96$		$df = 79$	Prob = .050

H4 stated that the managerial-experience difference significantly affects managerial attitudes and behaviors. The first group had 24 participants with less-than-one-year managerial experience; the second group consisted of 31 participants with 1-to-3-year managerial experience; and the third group had 26 participants with 4-or-more years of managerial experience. The mean scores from the pretest behavior minus attitude for the three groups were -7.17, -4.55, and -5.00, respectively. For the posttest behavior minus attitude, the three groups had mean scores of -.13, .42, and 2.65, respectively. For the posttest behavior minus pretest behavior, the mean scores of the three groups were 7.04, 4.97, and 7.65, respectively. As the one-way ANOVA analyses

in Table 6 showed, no significant differences existed among the three groups with varied years of managerial experience when comparing pretest-posttest managerial attitudes and behaviors. Therefore, H4 was rejected. H5 stated that the gender difference significantly affects managerial attitudes and behaviors. As Table 7 illustrated, the independent t-test scores showed no significant differences between female and male groups in the following three aspects: (a) the pre-existing managerial behaviors and attitudes ($df = 79$, $p = .944$); (b) the post-managerial behaviors and attitudes ($df = 79$, $p = .992$); and (c) the post- and pre-managerial behaviors ($df = 79$, $p = .928$). Therefore, H5 was rejected.

Table 6
One-Way ANOVA Tests for Experience Difference in Managerial Attitude and Behavior

Variables	Source of Variation	Sum of Squares	DF	Mean Square	F Ratio	F Prob.
Pre-B Score	Between Groups	101.16	2	50.58	2.13	.125
- A Score	Within Groups	1849.01	78	23.70		
	Total	1950.17	80			
Post-B Score	Between Groups	111.89	2	55.95	1.89	.157
- A Score	Within Groups	2298.06	78	29.46		
	Total	2409.95	80			
Post-B Score	Between Groups	114.19	2	57.09	2.99	.056
- Pre-B Score	Within Groups	1489.81	78	19.10		
	Total	1604.00	80			

Table 7
Independent t-Tests for Gender Difference in Managerial Attitude and Behavior

Variables	Gender Group	Number of Cases	Mean	Standard Deviation
Pre-Behavior Score	Female	31	-5.42	4.94
- Attitude Score	Male	50	-5.50	4.98
Pooled Variances		$t = .071$	$df = 79$	Prob = .944
Post-Behavior Score	Female	31	.97	5.08
- Attitude Score	Male	50	.98	5.78
Pooled Variances		$t = -.01$	$df = 79$	Prob = .992
Post-Behavior Score	Female	31	6.39	5.60
- Pre-Behavior Score	Male	50	6.48	3.68
Pooled Variances		$t = -.09$	$df = 79$	Prob = .928

Learning Experiences

Pretest Learning Experience

The majority (89%) of the participants reported that they always viewed themselves as Theory Y type managers or supervisors, and that was how they thought they behaved on the job. By contrast, only 11% of the participants viewed themselves as Theory X type managers. After completing the pretest, many Theory Y type participants were amazed to find out that their managerial behaviors were more of Theory X type—a total of 54% of the participants behaved as Theory X type managers. The following are two representative summaries of the Theory Y type participants:

I have always considered myself a Theory Y person and that is how I would act as a manager. The first part [i.e., pretest] of the exercise showed me that I am more of a Theory X person than Theory Y. This bothered me because I wanted to lead in the Theory Y manner. (a manufacturing manager)

Before the class started, I viewed myself as a Theory Y type manager. I thought I believed that work was a source of satisfaction to people, they did not like to be constantly controlled, and they did want responsibility. After taking the first part of the exercise, I found out I was much more Theory X than I thought. Many of my managerial behaviors were the opposite of what I thought I believed and this really surprised me. (a systems administrator)

Posttest Learning Experience

While the participants reported no change in their managerial attitudes during the simulation, a great majority (93%) of them reported that they behaved as Theory Y type managers. Even among those nine participants who firmly believed in Theory X

style, seven behaved towards Theory Y style during the simulation. As many participants indicated in their summaries, the training session, coupled with the simulation, was truly eye opening and very helpful to back up what they had learned. Here is a representative summary of the participants' posttest learning experience:

The second part of the exercise [i.e., the training and simulation] showed me how important it is to be a competent communicator. Through communication you learn to trust your subordinates and they learn to trust you, which leads to certainty. Certainty is more conducive to Theory Y management, which is where I want to be. (an assistant controller)

Three months later, in the student course evaluation at the end of the semester, 11 students wrote specific comments on their valuable learning experience from this training session. One accounting supervisor wrote:

Until the in-class exercise of managerial attitudes and behaviors, I managed my subordinates according to Theory X. After that exercise I shifted my thinking towards Theory Y. Since then I have recognized tremendous differences in my subordinates' work performance and my workload.

Discussion and Conclusions

First, as the findings from the tests of Hypotheses 1 and 2 and the participants' learning-experience summaries indicate, although many managers view themselves as Theory Y type managers and believe that is how they behave on the job, their managerial behaviors do not comply with their Theory Y attitudes when there is no effective communication between the managers and their subordinates. Once Theory Y managers and their subordinates are trained to communicate effectively, they have more certainty and trust in each other; therefore, their managerial behaviors comply with their Theory Y attitudes.

Furthermore, with an effective communication system in place, even managers who hold Theory X attitudes would behave more towards Theory Y style.

These findings support the following theories: (a) People's behaviors are generally consistent with their attitudes (Baron & Byrne, 1994; McPhee & Cushman, 1980; Schuman & Johnson, 1976). (b) Information is the source of attitude and behavior change (Ajzen, 1971; McPhee & Cushman, 1980). (c) Information helps people reduce uncertainty and increase the predictability of future events (Shannon & Weaver, 1949). And (d) Communication is a process to generate and share information (Kreps, 1990). More importantly, the findings advance these theories by linking them together and pointing out their interrelationships in an empirical, interdisciplinary manner as follows: Communication is a process to generate and share information (Kreps, 1990). Information helps people reduce uncertainty and increase the predictability of future events (Shannon & Weaver, 1949); therefore, information is the source of attitude and behavior change (Ajzen, 1971; McPhee & Cushman, 1980). People's behaviors are generally consistent with their attitudes (Baron & Byrne, 1994; McPhee & Cushman, 1980; Schuman & Johnson, 1976) when they have certainty about their environment.

Based on these findings, a theoretical conclusion is made: The consistency between managerial attitudes and behaviors depends on the effectiveness of a managerial communication system. By communicating effectively, managers and their subordinates are able to generate and share information that helps reduce uncertainty and increase the predictability of future events. Therefore, managers behave more in line with their managerial attitudes.

Second, managers' work-experience plays a moderator role in the managerial attitude-behavior relationship (Hypothesis 3). With an effective managerial communication system in place, managers with more work experience behave significantly more towards Theory Y than those with less work experience do. Without such a communication system, managers' work-experience difference has no impact on the managerial attitude-behavior relationship. Similarly, the difference of managerial experience and the gender difference have no significant effect on the managerial attitude-behavior relationship (Hypotheses 4 and 5). Based on these findings, the foregoing conclusion is further strengthened that the consistency between managerial attitudes and behaviors depends on the effectiveness of a managerial communication system.

Moreover, as the findings from participants' learning-experience summaries indicate, with an effective managerial communication system in place, not only the Theory Y managers' behaviors reflect their Theory Y attitudes, but also the Theory X managers behave more towards Theory Y style, even though they claim they believe in Theory X. This finding, coupled with the theory that information is the source of attitude and behav-

ior change (Ajzen, 1971; McPhee & Cushman, 1980), may suggest a further hypothesis that an effective managerial communication system would transform managers from Theory X towards Theory Y in behavior first and attitude later.

Theoretical, Managerial, and Pedagogical Implications

The findings of this study not only support the theories of the attitude-behavior relationship, the communication-information relationship, and the information-certainty relationship, but also advance these theories by linking them together and pointing out their interrelationships. Based on this advancement, an interdisciplinary theory can be developed: The consistency between managers' attitudes and behaviors depends on their certainty of the environment, which is the outcome of their effective communication. The more effectively a manager communicates, the more certainty he or she has about the environment, and the more consistent his or her managerial behavior is with his or her managerial attitude.

This communication-certainty-attitude-behavior relationship theory should benefit business corporations, nonprofit organizations, and government agencies. By establishing an effective communication system for obtaining certainty of the environment, managers with Theory Y orientation would be able to keep their managerial deeds (behaviors) and words (attitudes) in consistency. In consequence, they would find positive changes in their subordinates' work performance and in their workload. Similarly, once Theory X managers can communicate effectively, they would have more certainty and trust in their subordinates and would behave more towards Theory Y. And gradually their managerial attitudes might also change towards Theory Y.

Business management and communication educators and trainers should consider integrating this communication-certainty-attitude-behavior relationship theory into their curricula to help students, the current and future managers, understand and experience the positive impact of effective communication on managerial attitudes and behaviors. Therefore, students may exert more efforts in developing effective managerial communication skills.

Recommendations for Further Research

To test the validity of the communication-certainty-attitude-behavior relationship theory beyond the MBA training environment, this study should be replicated as field studies among business corporations, nonprofit organizations, and government agencies to test the long-term effect on managers after they participate in the training programs.

Replication should also be undertaken among managers who believe in Theory X to investigate whether an effective managerial communication system would gradually transform managers from Theory X towards Theory Y in behavior first and attitude later.

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Perceptions About Three Major Indigenous English-Language Accents: Viewpoints of Prospective and Practicing United Kingdom-Based Businesspersons

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Abstract

Perceptions about three major indigenous English-language accents were gathered from prospective and practicing businesspersons enrolled in bachelor's degree programs at a major United Kingdom business school. The well-established matched-guise technique was used to gather the data. Overall, the respondents ranked the studied English-language accent guises in this order: first, Received Pronunciation English; second, General American English; and third, Estuary English. One statistically significant difference was related to demographic differences. Attribute profile patterns constructed from respondents' mean ratings revealed individualistic patterns for all studied accents.

Introduction

English is widely considered to be the dominant business language (Colback & Maconochie, 1989), although it exists in many varied forms worldwide (Kameda, 1992). Progressive businesspersons are increasingly wanting to know which English-language accent(s) might give them a competitive advantage over those who speak other accents (DeShields, Kara, & Kaynak, 1996). Such businesspersons understand that they would benefit from knowing how both native and nonnative English speakers perceive English-language accents, the language tools on which they rely as they transact international business (Scott, 1996). However, very little is known about perceptions of English-language accents from any business-related perspective.

The purposes of the study were (a) to identify perceptions of prospective and practicing businesspersons attending a major United Kingdom business school regarding major indigenous English-language accents and (b) to examine differences between these perceptions and selected demographic characteristics. The research questions were the following:

1. What is the rank order of major indigenous English-language accents?
2. What are the statistically significant differences related to perceptions of major indigenous English-language accents and selected demographic characteristics?

3. What are the attribute profile patterns of major indigenous English-language accents?

Literature Review

A comprehensive literature search revealed only four studies and five reportings—Chiba, Matsuura, and Yamamoto (1995); DeShields et al. (1996); Scott, Green, and Rosewarne (1997); Scott, Green, and Rosewarne (1998); and Scott, Green, Rosewarne, and Neal (1999)—about perceptions of English-language accents from the viewpoints of prospective or practicing businesspersons. This confirms a major void in both the business and linguistic literatures. The authors of the latter study recommended that a related study be conducted in the United Kingdom, the home of two of the major indigenous English-language accents.

In studies conducted in the Western region of the United States and in the Pacific Rim region with prospective and practicing businesspersons, Scott et al. (1997, 1999) found that the major indigenous English-language accents were ranked in this order: first, General American English; second, Received Pronunciation English; and third, Estuary English. Only these two studies focused attention exclusively on prospective and practicing businesspersons enrolled in United States business schools.

The literature review found that linguisticians have conducted a few related studies. They suggested research approaches, includ-

ing the matched-guise technique, English-language accents, and demographic variables. Few of the studies included a range of varieties of one language or native and nonnative speakers.

Giles (1970, 1971a, 1971b, 1972) investigated native speakers' perceptions about British English accents. Rosewarne (1985, 1990) found that advanced-level nonnative English speakers and that teachers of English as a foreign or second language and students residing in the United Kingdom ranked major indigenous English-language accents in this order: first, Received Pronunciation English; second, General American English; and third, Estuary English. Flaitz (1988) found that native French speakers of English usually preferred the British, not the American, accent model. A variety of researchers, including Al-Kahtany (1995), Chiba et al. (1995), and Rubin and Smith (1990), have repeatedly found that more prestigious English-language accents receive consistently higher ratings than less prestigious English-language accents.

Lambert, Hodgson, Gardner, and Fillenbaum (1960) devised the employed matched-guise technique. Osgood (1964) improved the matched-guise technique when he devised the semantic differential scale rating procedure with bi-polar scales for reporting perceptions. Williams (1974) later questioned if researcher-supplied scales constrained respondents' perceptions and if nonnative English speakers fully understood the scale-label meanings. Wilson and Bayard (1992) noted that when semantic differential scales are used, male speakers are rated more favorably on personality criteria than female speakers are. Reflecting on more than 30 years of matched-guise research, Cargile, Giles, Ryan, and Bradac (1994) observed that respondents who use the matched-guise technique indicate definite and consistent attitudes toward those who use specific accents.

Thus, the literature confirms that business-related research about perceptions of English-language accents is clearly needed (a) to help businesspersons derive maximum value from the English language as a competitive advantage and (b) to fill major gaps in the literature. Related studies provided methodological guidance.

Research Methodology

The matched-guise technique is the most used linguistic research technique for gathering data about accent-related perceptions. The repeated recordings of the same culturally neutral announcement delivered in various accents by one male phonologist constituted the studied matched guises and the only study variables. The message was delivered in these major indigenous accents: General American English, Received Pronunciation English, and Estuary English. Information about these accents is found in *The Cambridge Encyclopedia of the English Language* (Crystal, 1995). The three studied accent recordings came from the large number correctly identified by all validators.

A group of advanced-level nonnative English speakers provided adjectival impressions of the speakers of the study guises that

were manipulated to construct the labels for the 14 semantic differential scales, 8 of which were within Lambert's (1967) personality criteria categories. This ensured that the labels on the semantic differential scales were intelligible for native and nonnative English speakers. Distractor guises or accent recordings that are not studied were incorporated into the study (a) to expose the respondents to more voice variety and (b) to reduce the likelihood that respondents would realize that all studied accents had been recorded by the same phonologist. Using one speaker for all studied accent guises eliminated variables associated with age, voice pitch, speech speed, and emotional reactions of respondents to voice qualities. Using taped guises eliminated variables associated with physical appearance, paralinguistics, and physical context. The studied and distractor guises were randomly sequenced. A practice activity was recorded so that respondents would know how to record their accent-related perceptions on the semantic differential scales. The research materials were pilot tested to ensure that they were free of apparent defects.

Data for the study were gathered at a major United Kingdom business school located in the western part of England. The institution was selected because it enrolls a typical mix of native and nonnative English speakers. Respondents from two intact study groups were targeted for participation. A researcher gathered the data during study-group sessions.

Students (a) learned about the opportunity to participate, (b) signed informed consent forms, (c) provided demographic information, (d) completed the practice activity, (e) listened to the taped guises, and (f) recorded their perceptions on semantic differential scales. For each of the studied and distractor guises, respondents recorded their perceptions by circling one number on each of the 14 scales for each of the accent guises. The related standardized item alphas averaged .95, which suggests a very high degree of reliability in the responses.

Descriptive and inferential statistics were calculated using SPSS for Windows Release 8.01. Arithmetic means, standard deviations, grand means, and ranking order were determined for each studied accent. Multiple ANOVAs with related Tukey (honestly significant difference) tests where appropriate were calculated to assess differences between perceptions of the studied accents and the demographic variables. Attribute profile patterns were created by plotting and connecting the respective arithmetic mean scores on each of the 14 semantic differential scales for each accent.

Research Findings

The research findings section is divided into four subsections.

Respondent Profile

Exactly 58 students from the two sampled first-year bachelor's degree business-student study groups provided usable study data. No evidence suggests that these volunteer respondents were dif-

ferent from all first-year bachelor's degree business students in any respect. There were 52 native and 6 nonnative English-speaking respondents.

The typical respondent was a 19 year old or under native English-speaking Caucasian female majoring in business studies/business administration. She did not work since governmental funding typically covers most of the costs of pursuing a bachelor's degree. She was not proficient for business purposes in a foreign language, although she had studied a foreign language, typically French, for multiple years. She identified herself with the South East, the region incorporating the Greater London area and surrounding counties. She had traveled outside the United Kingdom for personal but not business purposes.

Rank Order

Respondents indicated their perceptions of each of the English-language accent guises by circling numbers that reflected their perceptions of speakers on the 14 semantic differential scales. Table 1 shows the ranking and grand mean data for the studied English-language accent guises. Respondents preferred the Received Pronunciation English accent guise, although the General American English accent guise was a very close second.

Table 1
Ranking and Grand Means for All Respondents

English-language accent guise	Rank	Grand mean	Standard deviation
Received Pronunciation	1	78.23	7.37
General American	2	75.77	11.09
Estuary	3	58.43	11.37

Demographic-Based Differences

Respondents indicated their demographic characteristics by checking relevant categories. The demographic-related data were analyzed with the grand mean data for each English-language accent guise. Multiple one-way analysis of variance revealed one statistically significant difference. The statistically significant difference at the .05 level was for the General American English accent guise (F -ratio = 2.999, F Probability = .039, and $D.F. = 1$). The perceptions of those respondents who sometimes communicated with professional overseas colleagues who spoke languages other than English for business purposes were higher to a statistically significant degree than the perceptions of those respondents who seldom communicated with professional overseas colleagues who spoke languages other than English for business purposes for the General American English accent guise.

Attribute Profile Patterns

Respondents indicated their perceptions about the studied English-language accents by circling numbers that reflected their

evaluative responses to speakers on 14 semantic differential scales for each of the English-language accent guises. The arithmetic mean was determined for each scale for each of the studied English-language accent guises, and the data for each accent attribute were used to construct the overall accent attribute profile pattern. Figure 1 shows the attribute profile pattern for each of the studied English-language accent guises. Overall, the attribute profile patterns for the Received Pronunciation English and the General American English accent guises were the highest rated ones and were similar. However, the respondents clearly differentiated among the studied English-language accent guises on each of the 14 semantic differential scales.

Discussion

The discussion section is divided into four subsections.

Respondent Profile

The respondent profile information closely matches what is known about first-year bachelor's degree students at the sampled United Kingdom business school and at other major United Kingdom business schools.

The United Kingdom-based respondents were unlike those in the Scott et al. (1997, 1999) Intermountain West and Pacific Rim studies in terms of all demographic factors except for major or degree program. The nonnative students were primarily from British Commonwealth countries. Such differences are to be expected since the sample is drawn from a business school in a country where different geographic, cultural, historic, economic, and political ties exist.

Rank Order

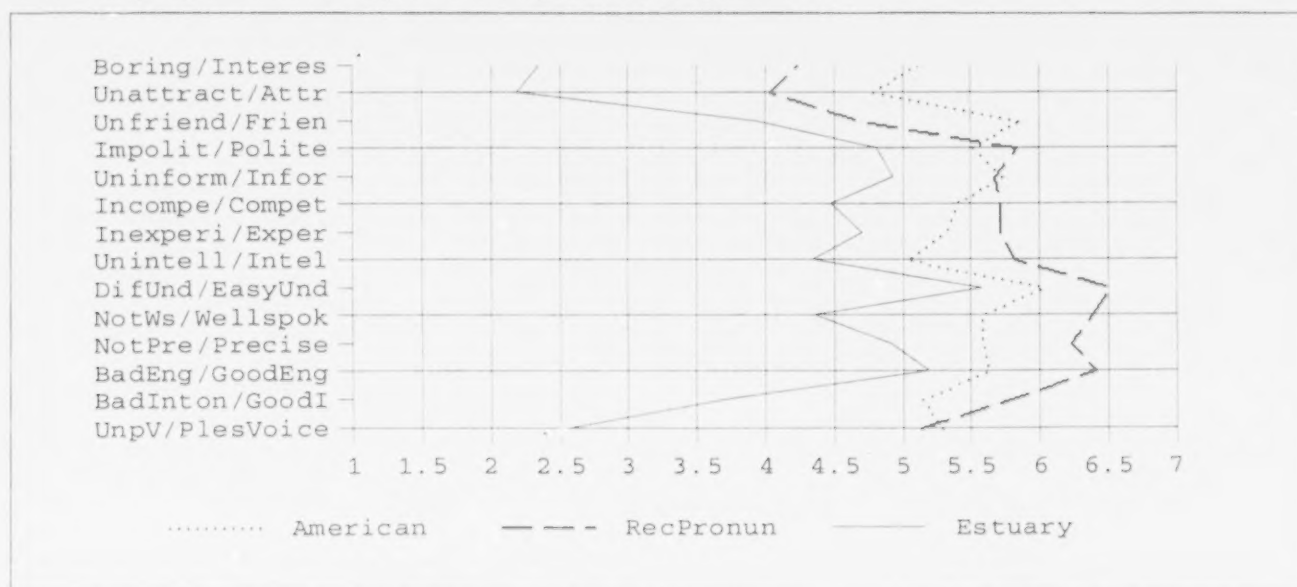
The rank order subsection is divided into two parts.

Ranking information. Overall, the rank order of the studied English-language accent guises in this study of United Kingdom-based respondents was much like that found in the Scott et al. (1997, 1999) studies of United States-based Intermountain West and Pacific Rim respondents, with very small differences between the first- and second-place accents. In all of the studies, the respondents most preferred the dominant indigenous English-language accent of their current country of residence and least preferred the Estuary English accent. This was also true in Rosewarne's (1985, 1990) studies of United Kingdom-based African, Asian, European, and Latin American respondents. The overall similarities in response patterns in all of the cited studies suggest a degree of stability in perceptions of English-language accents across cultural groups and countries over a time period of one and a half decades.

In spite of some differences in rank order in the cited studies, one thing is clear: Respondents do not perceive the indigenous Estuary English accent very favorably. This calls into question its suitability for international business-communication purposes

Figure 1

Semantic Differential Scale Attribute Profile Patterns for the General American English, Received Pronunciation English, and Estuary English Accent Guises for United Kingdom-Based Respondents



Note. Boring/Interes = Boring/Interesting; Unattract/Attr = Unattractive/Attractive; Unfriend/Frien = Unfriendly/Friendly; Impolit/Polite = Impolite/Polite; Uninform/Infor = Uninformative/Informative; Income/Compet = Incompetent/Competent; Inexperi/Exper = Inexperienced/Experienced; Unintell/Intel = Unintelligent/Intelligent; DifUnd/EasyUnd = Difficult to understand/Easy to understand; NotWs/Wellspok = Not Well-spoken/Well-spoken; NotPre/Precise = Not Precise/Precise; BadEng/GoodEng = Bad English/Good English; BadInton/GoodI = Bad intonation/Good intonation; and UnpV/PlesVoice = An unpleasant voice/A pleasant voice.

Note. 1 = extremely (negative characteristic); 2 = rather (negative characteristic); 3 = somewhat (negative characteristic); 4 = neither (negative characteristic) nor (positive characteristic); 5 = somewhat (positive characteristic); 6 = rather (positive characteristic); and 7 = extremely (positive characteristic).

Note. American = General American English accent guise; RecPronun = Received Pronunciation English accent guise; and Estuary = Estuary English accent guise.

in spite of its growing popularity within the United Kingdom, especially among the younger generations residing in the southern half of England from where most of the study respondents come and where the sampled business school is located. Perhaps the sampled—and other United Kingdom—business school students tend to come from more traditional, better educated, more affluent, and upwardly mobile households where their peers, unlike most others in their age group, continue to cling to Received Pronunciation English as a mark of and a means for preserving their social status within the British class structure. Emulating their parents, who likely used accents similar to Received Pronunciation English to gain upward mobility, these prospective and practicing businesspersons may represent a determined group swimming against the powerful tide of Estuary English within mainstream British society. It is possible that Estuary English-speaking respondents rated Received Pronunciation English above their own speech type.

As this new breed of better educated and trained British businesspersons becomes increasingly influential in British business circles, the use of downscale Estuary English accents by less well-educated and less well-trained British businesspersons

is likely to decline except for conducting domestic business with the British public who remain Estuary English speakers. Businesspersons who continue to speak only Estuary English, especially its downscale forms, will likely be poorly received outside of and eventually inside of the United Kingdom because of the growing globalization of business, which necessitates using a more universally acceptable English-language accent. Businesspersons who speak a more familiar, more easily understood, and more widely accepted major indigenous English-language accent such as Received Pronunciation English or General American English will have a competitive advantage over Estuary English speakers if other factors are comparable. Speaking a more internationally acceptable major indigenous English-language accent could enhance international competitive positions and professional opportunities for astute British businesspersons.

Usefulness implications. The ranking information may be useful to businesspersons as they select a major indigenous English-language accent to facilitate domestic and international business. Business-communication teachers can also use the ranking information as they provide comparative information about English-language accents for business-communication purposes.

Demographic-Based Differences

The demographic-based differences subsection is divided into two parts.

Demographic-related differences. The fact that only one statistically significant demographic-related difference was found suggests that demographic factors have minimal overall influence on perceptions of major indigenous English-language accents. Why the perceptions of respondents who sometimes communicated with professional overseas colleagues were higher to a statistically significant degree than the perceptions of respondents who seldom communicated with professional overseas colleagues for the General American English accent guise is unknown and warrants further investigation.

Usefulness implications. The demographic-related difference information may be useful to businesspersons in planning their communication strategies and messages. More specifically, businesspersons should realize that the General American English accent is perceived differently by prospective and practicing United Kingdom-based businesspersons depending on the frequency with which they communicate with professional overseas colleagues who speak other than the English language.

The demographic-related difference information may also be generally useful to business-communication teachers as they instruct prospective and practicing businesspersons. More specifically, business-communication teachers might discuss how the General American English accent is perceived differently depending on the frequency with which prospective and practicing United Kingdom-based businesspersons communicate with professional overseas colleagues who speak other than the English language.

Attribute Profile Patterns

The attribute profile patterns subsection is divided into two parts.

Profile pattern information. The attribute profile patterns for the Received Pronunciation English and General American English accent guises are similar overall, although the former was rated slightly higher on more attribute scales. The Received Pronunciation English accent guise was rated higher than the General American English accent guise in terms of politeness, competence, experience, intelligence, understandability, well-spokenness, preciseness, English quality, and intonation. The General American English accent guise was rated higher than the Received Pronunciation English accent guise in terms of interestingness, attractiveness, friendliness, informativeness, and voice quality.

The attribute profile pattern for the Estuary English accent guise was similar to that for the Received Pronunciation English accent guise but usually had ratings about 1.5 to 2.0 lower on the semantic differential scales. The Estuary English accent guise

was always rated the lowest of the studied major indigenous English-language accent guises in terms of the attribute scales.

In the Scott et al. (1997, 1999) studies of Intermountain West-based and Pacific Rim-based respondents, the overall attribute profile patterns were similar to those of the United Kingdom-based respondents, although they were less alike for the Estuary English accent guise than for the Received Pronunciation English and General American English accents guises. United Kingdom-based respondents rated the Estuary English accent guise somewhat higher in terms of understandability (intelligibility) and friendliness and somewhat lower in terms of interestingness and attractiveness.

Overall, the United Kingdom-based respondents rated the Received Pronunciation English, General American English, and Estuary English accent guises about the same as did the Pacific Rim-based respondents in the Scott et al. (1999) study and slightly higher than did the Intermountain West-based respondents in the Scott et al. (1997) study.

Both the United Kingdom-based respondents and the Pacific Rim-based respondents in the Scott et al. (1999) study perceived the Received Pronunciation English accent guise higher than the General American English accent guise in terms of well-spokenness, preciseness, and intonation but lower than the General American English accent guise in terms of attractiveness and friendliness. In Rosewarne's (1990) study of United Kingdom-based African, Asian, European, and Latin American respondents, the respondents also rated the General American English accent guise higher than the Received Pronunciation English accent guise in terms of friendliness.

The many similarities in perceptions of English-language attribute profile patterns in the four studies suggest a degree of stability in perceptions across cultural groups and countries over a period of approximately one and a half decades.

Usefulness implications. The attribute profile pattern information may be useful to businesspersons as they select the most effective major indigenous English-language accents to use given specific oral advertising goals. Businesspersons could select a highly rated English-language accent such as the Received Pronunciation English or the General American English accent to positively influence customers. They could positively shape consumers' perceptions by selecting not only an English-language accent that is highly rated by the targeted group but also one whose semantic differential scale attributes match the desired positive product image. Conversely, businesspersons could select a lowly rated English-language accent such as the Estuary English accent to negatively influence customers outside of the United Kingdom. They could negatively shape consumers' perceptions by selecting not only an English-language accent that is lowly rated by the targeted group but also one whose semantic differential scale attributes match the desired negative product image. This could be especially useful in comparative advertis-

ing statements that are disparaging about a competitor's goods or services. To use accent-preference information skillfully, businesspersons must clearly differentiate between advertising for the domestic and international marketplaces since what works well in one marketplace will not necessarily work equally well in another marketplace because of differing perceptions about English-language accents. This is particularly important in the marketing of services where intangible benefits play a crucial role. For telemarketing operations and for general administrative purposes, the accents of employees are crucial since customers are likely to link them with overall perceptions of the business.

The English-language attribute profile pattern information may be useful to people who promote products and services—especially advertisers—and the marketing teachers who train them. It may also be useful to business-communication teachers as they provide prospective and practicing businesspersons with comparative information about the attributes of English-language accents perceived by prospective and practicing United Kingdom-based businesspersons.

Business Educators' Implications

The exploratory study has identified the perceptions of prospective and practicing businesspersons who are studying at a United Kingdom business school regarding major indigenous English-language accents. The study data provide several implications for business educators.

Businesspersons may need to choose an English-language accent to facilitate the conduct of business at home and abroad. As a result, business educators, especially those who specialize in business communication, may need to make prospective and practicing businesspersons aware of perceptions about major indigenous English-language accents. They should encourage native English speakers to select one of the two international standard forms of spoken English as their professional and personal accent model. They should encourage others to select either the highly rated Received Pronunciation English or General American English accent as their professional and personal accent model since except possibly for overseas students studying in Canada and Australia, one of these two accents likely served as the role model when English was learned. Business educators should encourage people who speak other English-language accents to modify their speech over time in the direction of one of these two international standards of the English language because of their widespread understandability and acceptability among English speakers around the world. Ideally, business educators should serve as pronunciation models for their students by using speech that is close to one of the two international standards of the English language, Received Pronunciation English or General American English. Where this is not feasible, training in speaking and presenting skills for nonnative speakers of English should make use of recorded teaching materials that utilize these two accents. Whether standard British English or American English pronunciation is the target for a particular

group of prospective or practicing businesspersons, the other English-language standard needs to be presented for receptive purposes to enhance message comprehension.

United Kingdom businesspersons increasingly need to market their products internationally. As a result, business educators, especially those who specialize in marketing, advertising, and business communication, may need to make prospective and practicing United Kingdom-based businesspersons aware of English-language accent preferences. Since only a few research studies address perceptions of English-language accents in business-related contexts, business-communication specialists, perhaps in partnership with linguists, need to conduct additional research to fill the void.

United Kingdom businesspersons may need to refine their business-communication strategies and messages to reflect customers' preferences and the attributes of the chosen English-language accent(s). As a result, business-communication specialists may need to provide prospective and practicing businesspersons with information about the differences in perceptions of major indigenous English-language accents. Since little relevant information exists, more research must be conducted.

Future Research Recommendations

Although this exploratory study has provided basic information about the perceptions of prospective and practicing United Kingdom-based businesspersons regarding major indigenous English-language accents, additional research needs to be conducted.

1. Researchers should replicate this study periodically with refinements as necessary to reflect the evolution of major indigenous English-language accents. Replication should occur every five to ten years since Rosewarne's (1985, 1990) studies indicate that accent preferences and ranking orders can change in relatively short periods of time. When data are available from comparable United Kingdom-based samples, then the results can be compared diachronically, resulting in a longitudinal study of the evolution of perceptions about major indigenous English-language accents in the United Kingdom. Other business-communication status studies, including those by Green and Scott (1996) and Ober and Wunsch (1991), have suggested the value of gathering longitudinal data to understand better the dynamics of change for business communication-related phenomena. Replication could occur within the same or a different business school. Using a different business school and obtaining similar results would strengthen the contention that there is nothing unique about the sampled business school and its demographic characteristics that unduly influenced its students' perceptions about major indigenous English-language accents.
2. Researchers should replicate this study in other English-speaking countries with refinements as necessary to accommodate cultural differences. This would increase

understanding about perceptions of major indigenous English-language accents.

3. Researchers should replicate this study in major trading regions in the world with refinements as necessary to accommodate cultural differences. The European Union would be a logical place for conducting additional research since United Kingdom-based data already exist.
4. Researchers should attempt to answer the question that this study could not: why United Kingdom-based respondents perceive the General American English accent guise differently depending on the frequency with which they communicate with professional overseas colleagues who speak languages other than English. This mystery needs to be solved.
5. Researchers should explore the short- and long-term ramifications of using various English-language accents for business-communication purposes. This might build upon the work that DeShields et al. (1996) have done. This could help businesspersons to use the full potential of English-language accents more effectively than they currently do as a competitive advantage in both the domestic and international marketplaces, as well as to strengthen the related literature.

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Preliminary Attitudes Towards Online Testing in Business Education Courses

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Abstract

Not only does online testing enhance teacher efficiency and productivity, but also fits many universities goals of producing technologically sophisticated students. This was a preliminary study that examined student's attitudes toward using online assessment. Computer applications and business communications participated in this study. This study provides evidence that students had both positive and negative perceptions towards online testing. From the preliminary picture, the categories that emerged were testing procedures, convenience, test anxiety, environment/logistics, and personal responsibility.

Introduction

Computer technology and the Internet have both been driving forces that are transforming teaching and learning. Many universities have started to add options that include online instruction, distance learning, and computer assisted methods for the delivery of courses. Crossman (1997) stated non-traditional classrooms and Internet based instruction are growing faster than any other instructional technology. With these changes occurring in the delivery of instruction, it only seems natural to integrate the same technologies in the process of assessing student learning.

Online testing enables instructors to integrate a traditional method of testing with computer technologies and the Internet. Greenberg (1998) reported that approximately one-third of the technical and community colleges are using online testing. This new assessment tool presents challenges for instructors and students.

Within business education computer technology has been integrated in portfolio assessment (Moore & Bartlett, 1999; Bartlett, 1998), as well as, more traditional assessment methods such as objective theory/concept tests (Copper, 1999). These assessment methods have been integrated into both theory and lab courses.

Theoretical Base

Computer based assessment on personal computers has been conducted since the introduction of the PC. This technology has proven useful for many classroom settings however, with the emergence of Internet based technologies it has become a more powerful tool for teachers. In business education, Cooper

(1999) has reported the use of online testing in computer foundation courses. In addition, Cooper (2000) found that in computer foundation courses online testing mixed with hands-on/project based assessment was an effective method to measure learning, and this method satisfies most of the students.

In a study that compared web-based testing and evaluation systems, it was stated that functionalities such as evaluation of concepts, student feedback concerning performance during evaluations, and a complete assessment of understanding is needed (Gibson, Brewer, Dholakie, Vouk, & Bitzer, 1999). It is important to note when using any testing tool it is possible for the tool to influence the instructor to modify the test to fit the tool; and online assessment is not different. Programs such as Ball State's inQsit© allows instructors to test or survey their students via a web-based program. Tests and surveys can incorporate true/false, multiple choice, multiple response, essay, fill-in-the blank, and Likert scale questions (Fortriede & Draper, 2000). When choosing an online testing tool it is important to find a tool that will meet the needs of the course.

Not only does online testing enhance teacher efficiency and productivity, but fits most universities goals of producing technologically sophisticated students. It also appears that implementing online testing raises the student's comfort level with new technologies. Copper (1999) reported that students were highly satisfied by the immediate feedback online can provide.

Purpose

Since there have been many articles on the use of online assessment, it seems practical to examine the students perceptions of online assessment. It is important for instructors to understand

student's attitudes toward using online assessment. The purpose of this study was to:

1. Describe the participants on selected demographic variables.
2. Understand student's attitude toward online testing.
3. Develop categories in a table format to explain student's attitude toward online testing.

Methodology

Participants

This study sought the participation of students who participated in online testing at a school that is classified as a Carnegie Doctoral I institution. Participants were from computer application and business communication classes.

Instrumentation

Due to the lack of literature on student perceptions of online testing, a mixed method approach was taken. Quantitative information was gathered to describe the participants in the project. A qualitative approach was taken to develop preliminary perceptions towards online testing. Three open questions were posed to each group of students. They were asked 1) what they liked about online testing and using a proctored lab, 2) what they did not like about online testing and the proctored lab and 3) provide any other feedback that is important in future online testing. Data on gender, major, age, grade point average, and number of course hours completed was collected from an existing database.

Data Analysis

After describing the participants, the open-ended questions concerning the students preliminary perceptions of online testing were systematically analyzed to help better understand students perceptions. Data was organized into patterns, categories, and themes. Since this methodology is one that evolves, items that can be identified and counted was be reported.

Findings

The data analysis indicates that students have both positive and negative comments about online testing. The participants were all college of business majors and ranged from freshman to seniors. Of the 71 participants, 33 (46%) were female and 39 (54%) were male.

The positive and negative categories were developed from systematic analysis of student's written comments. Table 1 represents the positive attitudes toward online testing. The category of testing procedures had the greatest number of positive comments. Quickness to take and fast results occurred most frequently. Convenience was the second highest rated positive aspect

of online testing, with the most frequently observed statement being "able to select their own test time".

Table 1 also illustrates the negative student attitudes toward online testing. Again, testing procedures was the category having the greatest number of negative comments. With the highest concern being that no teacher was present and there was no hard copy of the test. The next highest concern the students had was concerning the testing environment. Technical problems and lab assistants talking were the two highest negative aspects of online testing.

Some of the more specific student comments were as follows:

- online testing was much quicker than the traditional paper and pencil testing.
- the online test was easy to schedule and provided more opportunity to manage a hectic time schedule.
- the online testing system was easy to navigate.
- the online testing did not provide a place to write information down on a paper when making decisions on choosing answers.
- reading the test on the computer screen was hard.
- the proctored lab did not have the instructor present and the proctors were not able to help with test questions.
- the online test provided immediate feedback.

Conclusions/Implications

This research has implications for business educators, administrators, and students. For this study the students were both male and female, ranging from freshman to seniors, and were all college of business majors. Student's attitudes toward online testing were categorized as both positive and negative. Preliminary categories that emerged were procedures of online testing, convenience, test anxiety, environmental/logistics, and personal responsibility.

It is important to understand how students perceive online testing. To be able to make changes to better meet the needs of students, it is essential to understand their perceptions and use their feedback. Since there is not much data to support the use of online assessment these initial comments provide a better picture on the use of the assessment.

Further Research

Further research is needed to fully understand student's perceptions of the use of online testing. It is suggested that a study be conducted that uses a larger sample, includes statements related to the studied categories, and compares selected demographic variables with online perceptions. Also, it is suggested that experimental research be conducted to compare online testing results with traditional paper and pencil testing methods.

Table 1.
Student's Positive and Negative Perceptions Towards Online Testing

Categories - Positive	Categories - Negative
Procedures Fast results/shows missed answers Quick to take No bubble sheets Easy to revise/change answers A different method No pages to flip through Showed time remaining Harder to cheat Easy directions to follow	Procedures No teacher present Time limit No hard copy of test Difficult to review Did not show correct answers Continue button misleading/could not change answers No paper and pencil Had to read from screen Easy to cheat Hard to get use to clicking
Convenience Select time of test/Make reservation Location More time to study	Environment/logistical Technical computer problems Lab People talking Room too cramped No privacy Not a classroom setting Screen hurt eyes Room was dark
Test Anxiety Easy to use/user friendly Easy to concentrate/focus Did not feel hurried Less test like More time to finish	Convenience Different building Had to make reservation Had to wait till scheduled time Not accessible everywhere
Environment/logistical Helpful lab assistant Quiet Comfortable setting Large monitor Using computer	Personal Responsibility Must have student identification Must be on time
Personal Responsibility Conservation of paper	Test Anxiety Hard to concentrate Made student nervous Too relaxed (did not feel like test) Felt rushed

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Reliability and Validity of the Group Member Rating Form

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Abstract

Both academic and business leaders support the need to include group work in classroom instruction, but for students to be able to function effectively in group work, they need to receive feedback on their contributions and reflect on how their actions might affect the group. This research presents a Group Member Rating Form as an evaluation instrument for students to evaluate themselves and other members in the group. Exploratory factor analysis and Cronbach's alpha indicated that the instrument has high reliability, and confirmatory factor analysis showed that the instrument has good validity.

Reliability and Validity of the Group Member Rating Form

The need to include group work in the classroom is supported by both academic and business leaders. Educators believe that group work produces learning, higher-order thinking, pro-social behavior, and interracial acceptance (Farivar, 1995). Employers stress the importance of the ability to work in a group and be a team player (McLaughlin, 1995; SCANS, 1991). To maintain competitiveness, businesses need employees from entry-level to management who can work well with others and contribute to the organization's goals (Jenkins, 1992; Peel, Joyner, & Volk, 1998).

If students are only encouraged to work individually, they are not learning how to be successful in a typical workplace environment; therefore, the issue of effective group function should be addressed during the educational process if one is to work successfully with others (Cohen, Fink, Gadon, & Willets, 1984). Merely putting students in groups does not ensure effective teamwork. When group work is included in teaching, it is essential that students are evaluated on not just how well they complete tasks and achieve the academic goals, but also on how well they are working to build and maintain productive working relationships (Baloche, 1993).

Johnson, Johnson, and Holubec (1994) maintained that a common teaching error in incorporating cooperative learning is providing little or no time for students to process the quality of their cooperation. Students need to receive feedback, reflect on how their actions might affect the effectiveness of the group work, and learn to be more skillful in the future group sessions. Re-

search on the effectiveness of feedback found that for feedback to have maximum impact, it needs to be focused on the actions of individual group members, not the group as a whole. Also, the personal implications of the individual feedback should be discussed with students face-to-face (Archer-Kath, 1994).

For students to evaluate and provide individual feedback of team members, they need an evaluation instrument that provides clear expectations of an individual's responsibilities and contributions. Teachers could also use such an instrument to assess students' abilities to work and study together.

Development and Description of the Instrument

The instrument was initially developed in 1998 by Sormunen-Jones and Chalupa to be used by students in their classes to evaluate themselves and each group member on their ability to work as a group. No readily available instrument was found in a search of the literature. Comments from students about previous group work experience and a review of the literature formed the foundation for the 11 statements developed. A 5-point Likert scale was used for students' responses with 1 as not satisfying the identified statement to 5 as satisfying the identified statement. Table 1 lists the 11 criteria and assigned variable names for statistical analyses.

The instrument contained six blocks of the same evaluation criteria. The first block was for students to self-evaluate; the other blocks were for the students to evaluate each other in the group. Some of these blocks may not be used if the group has fewer members. A copy of the instrument is included in Appendix A.

Table 1
Evaluation Criteria

Self-Evaluations Variable	Member Evaluations Variable	Criteria
Self1	Other1	Attended meetings
Self2	Other2	High quality ideas
Self3	Other3	Dependable
Self4	Other4	High quality work
Self5	Other5	Committed to group goal
Self6	Other6	Did more than fair share
Self7	Other7	Supports committee members (shares resources, ideas, encouragement, constructive feedback)
Self8	Other8	Easy to work with
Self9	Other9	Works through conflict to satisfactory resolution within group
Self10	Other10	Participates in evaluation of group process (working relationships, progress towards goals)
Self11	Other11	Contributed on time

Purpose

The purpose of this paper is to present the instrument and reliability and validity data of the instrument. The reliability tests include exploratory factor analysis and Cronbach's alpha. Confirmatory factor analysis was conducted to determine the factor validity of the instrument.

Method

This section discusses the demographics of the subjects and statistical procedures used for the reliability and validity tests.

Demographics

The data were gathered from 92 students in three different sections of a business communications course at a Midwestern university. The instrument was administered after the students had completed and presented their group work assignment. The assignment involved group work over a 12-week period in which the students did an analysis of a company. Of the 92 students, 31 (33.7%) were female and 61 (66.3%) were male. The majority of the students (68.5%, $n=63$) were sophomores, 30.4% ($n=28$) were juniors, and one (1.1%) was a graduate student. Their majors included 17 (18.5%) in Accounting, 5 (5.4%) in Business Education and Office Administration, 14 (15.2%) in Finance, 1 (1.1%) in Economics, 26 (28.3%) in Management, 22 (23.9%) in Marketing, and 6 (6.5%) declared a double major. One individual did not indicate a major.

Statistical Procedures

The 11 scores from the self-evaluations were used directly for statistical analyses. However, the average scores of group mem-

bers' evaluations on a particular student were calculated for analyses due to the number of students in each group varied.

According to Loehlin (1992), exploratory factor analysis generally is used to "seek a latent variable structure that could account for the intercorrelations of an observed set of variables" (p. 18). Therefore, exploratory factor analysis using principal component factor extraction method was conducted to determine the internal consistency of the instrument. A reliability analysis then was conducted to provide an additional indication as to whether the items will measure the same underlying concept in repeated samples. Confirmatory factor analysis was then performed to determine the factor validity of the instrument.

The same procedures were conducted separately for the self-evaluations block and other members' evaluations block of the instrument.

Results

This section reports the statistical results on the self-evaluations and the member evaluations blocks of the instrument.

Self-Evaluations

Table 2 illustrates the results of the exploratory factor analysis using principal components as the extraction method.

As indicated in Table 2, two factors (5.066 and 1.302) were extracted; however, the second factor had a considerably smaller value and was very close to 1. A scree plot was produced to provide an additional perspective. Figure 1 illustrates the scree plot of the eigenvalues in Table 2.

Table 2
Summary of Initial Factor Extraction for Self-Evaluations

Component	Total	Initial Eigenvalues	
		% of Variance	Cumulative %
1	5.066	46.050	46.050
2	1.302	11.837	57.887
3	.940	8.549	66.435
4	.865	7.867	74.302
5	.628	5.710	80.012
6	.576	5.236	85.248
7	.466	4.237	89.484
8	.347	3.158	92.643
9	.302	2.744	95.387
10	.272	2.472	97.859
11	.236	2.141	100.000

Figure 1
Screen plot of eigenvalues—Self-evaluations

Since the curve of decreasing eigenvalues changes from a rapid, decelerating decline to a flat gradual slope after the first component, it was reasonable to view the self-evaluations items as being unidimensional, i.e. as having only one factor.

The reliability analysis then gives an additional indication as to whether the items will measure the same underlying concept in repeated samples. Table 3 shows the reliability of self-evaluations.

As illustrated in Table 3, all items have high correlation. The lowest item Self1 had an acceptable correlation of .3. The Alpha statistics was .87.

A confirmatory factory analysis was then conducted to test the validity of the items on the self-evaluations block. Based on the exploratory factor analysis, the self-evaluations path model was constructed as illustrated in Figure 2.

Table 3
Reliability of Self-Evaluations

	Scale Mean if Item Deleted	Corrected Item-Total Correlation
Self1	44.89	.32
Self2	45.38	.51
Self3	44.90	.76
Self4	45.21	.46
Self5	44.92	.57
Self6	45.52	.49
Self7	44.99	.66
Self8	44.96	.53
Self9	45.08	.68
Self10	45.00	.71
Self11	44.92	.71

n of Cases = 92.0, n of Items = 11, Alpha = .87

Figure 2
Self-Evaluations Path Model

In this model, the Self is a unidimensional, unobserved variable. Each of the 11 observed variables explains Self, but they are related with each other only through the unobserved Self variable (no arrows between these 11 items). The unobserved error term for each item is represented in circles. Both raw score covariances and standardized correlations were estimated. Table 4 lists the unstandardized and standardized regression coefficients. Variable 1 was forced to have a coefficient of 1 to identify the model.

As illustrated in Table 4, all variables (with the exception of variable 1, Self1) have critical ratios higher than the significant ratio of 2.01, and all variables have a desirable factor loading of .3 or higher.

Table 4
Confirmatory Factor Analysis of Self-Evaluations

Variable	Unstandardized			Standardized/ Factor Loading
	Estimate	S.E.	C.R.	
Self1	1.000			0.378
Self2	1.194	0.407	2.936	0.468
Self3	1.785	0.501	3.560	0.822
Self4	1.047	0.369	2.835	0.436
Self5	1.402	0.426	3.292	0.621
Self6	1.606	0.533	3.016	0.496
Self7	1.581	0.461	3.426	0.706
Self8	1.441	0.443	3.250	0.598
Self9	1.842	0.528	3.486	0.752
Self10	1.802	0.512	3.518	0.780
Self11	1.654	0.467	3.544	0.805

RMR = .038 GFI = .836 AGFI = .754.

Root-Mean-Square Residual (RMR) represents a kind of average of the absolute discrepancies between the observed and implied matrices (Loehlin, 1992). This Self path model has a desirable, small RMR of .038. It also has a goodness-of-fit index of .836 and an adjusted-goodness-of-fit index of .754. According to Loehlin (1992), relatively high values for both GFI and AGFI achieve a good fit. In addition, this model had a Chi-square of 94.42 and a degree of freedom (DF) of 44; therefore, it has a Chi-square over DF ratio of 2.1, which is well below the generally acceptable value of 5.

Member Evaluations

As with the self-evaluations portion of the instrument, an exploratory factor analysis with principal component analysis extraction method was used to determine the number of factors for the member evaluations portion of the instrument. Table 5 lists the results.

Table 5
Summary of Initial Factor Extraction for Member Evaluations

Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	7.817	71.068	71.068
2	.893	8.120	79.188
3	.713	6.482	85.670
4	.398	3.620	89.290
5	.311	2.823	92.113
6	.219	1.989	94.102
7	.177	1.605	95.707
8	.147	1.334	97.041
9	.137	1.245	98.286
10	.096	.881	99.168
11	.091	.832	100.000

The eigenvalues in Table 5 indicated that for member evaluations portion of the group rating form, there was only one factor and the items on the group rating form were unidimensional. However, a scree plot was produced to provide a clear illustration. Figure 3 shows the scree plot for member evaluations.

Figure 3
Screen plot of eigenvalues—Member Evaluations

Reliability of evaluations of others was then conducted. Table 6 lists the results of the reliability test.

Table 6
Reliability of Member Evaluations

	Scale Mean if Item Deleted	Corrected Item- Total Correlation
Other1	44.99	.66
Other2	45.17	.83
Other3	45.06	.87
Other4	45.19	.74
Other5	45.06	.86
Other6	45.49	.74
Other7	45.15	.79
Other8	45.02	.75
Other9	45.10	.79
Other10	45.10	.92
Other11	45.01	.88

N of Cases = 92.0, N of Items = 11, Alpha = .95

All items in the member-evaluations block of the group rating form have high correlation. The Alpha statistics was .95. As with the self-evaluations block of the group rating form, a confirmatory factor analysis was then conducted to test the validity of the items that are used to evaluate other group members. Based on the unidimensional factor yielded by the exploration factor analysis, the member-evaluations path model was constructed as illustrated in Figure 4.

The Other in this model represents a unidimensional, unobserved variable. Each of the 11 observed variables explains Other, but

Figure 4
Member-Evaluations Path Model

they are related with each other only through the unobserved Other variable (no arrows between these 11 items). The unobserved error terms for each item is represented in circles. As with the Self-evaluation path model, both raw score covariances and standardized correlations were estimated for this model. Table 7 lists the unstandardized and standardized regression coefficients.

Table 7
Confirmatory Factor Analysis of Member Evaluations

Variable	Unstandardized			Standardized/ Factor Loading
	Estimate	S.E.	C.R.	
Other1	1.000			0.680
Other2	0.913	0.125	7.332	0.823
Other3	1.260	0.161	7.812	0.884
Other4	0.730	0.109	6.677	0.743
Other5	1.012	0.128	7.921	0.898
Other6	1.078	0.160	6.715	0.747
Other7	0.993	0.136	7.281	0.817
Other8	0.769	0.109	7.051	0.788
Other9	0.852	0.115	7.396	0.831
Other10	1.141	0.137	8.333	0.952
Other11	0.952	0.122	7.825	0.886

RMR = .017 GFI = .672 AGFI = .508

Variable 1 (Other1) was forced to have a coefficient of 1 to identify the model. As listed in the table, all variables have a critical ratio well above the significant ratio of 2.01, and all variables have a desirable factor loading of .3 or higher.

This model was also subjected to various tests for its goodness-of-fit. The model had a Root-Mean-Square Residual of .017. It has a goodness-of-fit index of .672 and an adjusted-goodness-of-fit index of .508. In addition, this model had a Chi-square of 198.37 and a degree of freedom of 44; therefore, it has a Chi-square over DF ratio of 4.5, which is below the generally acceptable value of 5.

Conclusions

This study examined the reliability and validity data of a group member rating form developed by Sormunen-Jones and Chalupa. The instrument contains 11 items in a "self-evaluation" block and "member" blocks. These two blocks were examined separately.

Exploratory factor analysis for the "self-evaluation" and the "member" blocks indicated the 11 items are unidimensional, having one factor. The 11 items are measuring the same concept; therefore, the instrument has good internal consistency.

The instrument has high reliability as the alpha for the "self-evaluation" block was .87 and for the "member" blocks .95, thus, the instrument repeatedly measures what it intends to measure.

The validity of the items in the self-evaluation" and "member" blocks is good as all variables in both blocks have critical ratios higher than the significant ratio and all items have satisfactory loadings. Both blocks have satisfactory GFI indices and AGFI indices. The Chi-squares over DF ratios for both blocks are below the generally accepted value of 5. Therefore, the items have good validity.

Recommendations

The instrument was used in a business communications course where students worked on a group assignment over a 12-week period. Further research is recommended with this instrument to confirm reliability and validity. Reliability and validity could be analyzed using this instrument in another type of course where the group work may require less time to complete. Also, the instrument could be useful for evaluation of group members working on a project in a technology-based course.

The use of this instrument helps students to receive feedback on how well they are building and maintaining productive working relationships. As group work is a typical approach to accomplishing tasks in the workplace, individual actions or lack of actions can determine the success or failure of group efforts. Using this form, students can receive the needed feedback and learn to be more skillful in future group sessions.

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Group Member Rating Form©

This is a confidential rating and will not be shared with group members. Evaluate yourself and the group members on their ability to work as a group. Circle 5 if the individual satisfies the identified statement. Circle 1 if the individual does not satisfy the identified statement. Individuals may fall anywhere on the 5 to 1 scale (5 is good; 1 is not good).

Self: _____ Group # _____ Name _____

Attended meetings	5	4	3	2	1
High quality ideas	5	4	3	2	1
Dependable	5	4	3	2	1
High quality work	5	4	3	2	1
Committed to group goal	5	4	3	2	1
Did more than fair share	5	4	3	2	1
Supports committee members (shares resources, ideas, encouragement, constructive feedback)	5	4	3	2	1
Easy to work with	5	4	3	2	1
Works through conflict to satisfactory resolution within group	5	4	3	2	1
Participates in evaluation of group process (working relationships, progress towards goals)	5	4	3	2	1
Contributed on time	5	4	3	2	1

Attended meetings	5	4	3	2	1
High quality ideas	5	4	3	2	1
Dependable	5	4	3	2	1
High quality work	5	4	3	2	1
Committed to group goal	5	4	3	2	1
Did more than fair share	5	4	3	2	1
Supports committee members (shares resources, ideas, encouragement, constructive feedback)	5	4	3	2	1
Easy to work with	5	4	3	2	1
Works through conflict to satisfactory resolution within group	5	4	3	2	1
Participates in evaluation of group process (working relationships, progress towards goals)	5	4		2	1
Contributed on time	5	4	3	2	1

Name _____

Name _____

Attended meetings	5	4	3	2	1
High quality ideas	5	4	3	2	1
Dependable	5	4	3	2	1
High quality work	5	4	3	2	1
Committed to group goal	5	4	3	2	1
Did more than fair share	5	4	3	2	1
Supports committee members (shares resources, ideas, encouragement, constructive feedback)	5	4	3	2	1
Easy to work with	5	4	3	2	1
Works through conflict to satisfactory resolution within group	5	4	3	2	1
Participates in evaluation of group process (working relationships, progress towards goals)	5	4	3	2	1
Contributed on time	5	4	3	2	1

Attended meetings	5	4	3	2	1
High quality ideas	5	4	3	2	1
Dependable	5	4	3	2	1
High quality work	5	4	3	2	1
Committed to group goal	5	4	3	2	1
Did more than fair share	5	4	3	2	1
Supports committee members (shares resources, ideas, encouragement, constructive feedback)	5	4	3	2	1
Easy to work with	5	4	3	2	1
Works through conflict to satisfactory resolution within group	5	4	3	2	1
Participates in evaluation of group process (working relationships, progress towards goals)	5	4		2	1
Contributed on time	5	4	3	2	1

Name _____

Name _____

Attended meetings	5	4	3	2	1
High quality ideas	5	4	3	2	1
Dependable	5	4	3	2	1
High quality work	5	4	3	2	1
Committed to group goal	5	4	3	2	1
Did more than fair share	5	4	3	2	1
Supports committee members (shares resources, ideas, encouragement, constructive feedback)	5	4	3	2	1
Easy to work with	5	4	3	2	1
Works through conflict to satisfactory resolution within group	5	4	3	2	1
Participates in evaluation of group process (working relationships, progress towards goals)	5	4	3	2	1
Contributed on time	5	4	3	2	1

Attended meetings	5	4	3	2	1
High quality ideas	5	4	3	2	1
Dependable	5	4	3	2	1
High quality work	5	4	3	2	1
Committed to group goal	5	4	3	2	1
Did more than fair share	5	4	3	2	1
Supports committee members (shares resources, ideas, encouragement, constructive feedback)	5	4	3	2	1
Easy to work with	5	4	3	2	1
Works through conflict to satisfactory resolution within group	5	4	3	2	1
Participates in evaluation of group process (working relationships, progress towards goals)	5	4		2	1
Contributed on time	5	4	3	2	1

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Students as Action Researchers: Conducting a Marketing Education Issues Study

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Abstract

This project provided relevant pre-service training for teachers in conducting action research to solve a local problem or issue. This technique was implemented to conduct a study with the purpose of determining Indiana Business Educators perceptions to issues in marketing education. The teachers felt that teacher shortages, losing programs, and administrative support were the most critical issues. Students going to four-year colleges, the fragmentation of marketing education by specialized courses, and DECA name change were the least important.

Introduction

Bronner (1999) described action research for business educators as "generally research conducted in a classroom or in a clinical environment—usually addresses the "itch" that business educators want to scratch when considering answers to problems that address personal teaching issues as contrasted with theoretical or more global problems" (p. 191). However, when many students exit their undergraduate studies with a teaching certification, for the most part, they lack formal training in conducting action research.

To develop students as action researchers it is essential to make them aware of action research and allow them to conduct research projects. Since action research is typically used to solve a local problem or issue, it seems relevant for students to receive pre-service training in this area. In a current marketing course, this technique was implemented.

Theoretical Base

In the past, studies have examined concerns and problems facing future and current marketing educators. Alexander, Ober, Davis, Underwood (1997) and Underwood and Davis (1987) explored the issues facing pre-service and experienced teachers. These studies both reported that there were similarities and differences between the two groups on teaching concerns. Other studies explored concerns of marketing educators in Indiana and Illinois (Wray, 1988; Wray & Davis, 1990; Underwood & Davis (1985). In a more recent study of traditional and alternatively certified teachers, Truell (1999) found that there were differences in their concerns.

This study is important to business educators, pre-service business educators, and administrators. Due to the fact business education is a rapidly changing field of study, the issues within the field are also changing quickly. It is essential to be continually evaluating issues that are of concern to all business educators.

Purpose

The purpose of this study was to determine and compare Indiana Business Educators perceptions to issues in marketing education. Specifically, the study will:

1. Describe marketing educators on selected demographics.
2. Describe marketing educators perceptions of how important the issues are in marketing education.
3. Describe marketing educators level of agreement with current issues in marketing education.
4. Explore if there is a significant difference between the marketing educators perceptions of issue importance and level of agreement with the issue.

Methods

Participants

Three teachers and the state consultant for business and marketing education were identified as experts and interviewed to determine the current issues in marketing education. Once the instrument was created, all 86 marketing education teachers from Indiana were selected to participate in the study.

Instrumentation

Students identified experts in the field of marketing education in Indiana. Once identifying experts, students conducted interviews with four individuals to identify issues that are critical to marketing educators. Once the students identified the issues through the use of a formal interview method, 29 issue statements were constructed. One five item response scale was created to measure how important the issue is to marketing education (5=critical, 4=very important, 3=important, 2=little importance,

1=no importance) and one five item scale was created to measure if the respondents agreed or disagreed with the statements (5=strongly agree, 4=agree, 3=undecided, 2=disagree, 1=strongly disagree).

After the issue statements were placed in the survey form, a group of experts reviewed the items and scales. Suggested expert changes were made. The completed instrument included demographic questions including years teaching experience, highest degree held, school type, school location, school size, DECA chapter information, number of teachers in school, years before leaving, and status of teacher certifications in a program and the issue statements with both scales.

By utilizing the expert interviews and instrument reviews both face and content validity are insured. Since test-retest is the only true measure of reliability, Cronbach's Alpha will be reported to estimate the internal consistency of the issue statements on both how important the issue is in marketing education and how much the participants agree or disagree with the statements.

Data Analysis

Frequencies and percents will be used to report all nominal and ordinal data. Means and standard deviations will be reported for interval data. Inferential t-tests will be used to compare the importance of the issue with the level of agreement to the statement.

Limitations

This study was conducted as part of a business education course. Students participated in the collection of data in interviews. When asked by NYU professor Bridget O'Conner (1990), the Editor of "Ask the Experts Column" to respond to the issues concerning action research compared to formal research action research Olney and Bell stated "it can be used to solve a specific problem. But, since there may be a lack of precise design one cannot always insure reliability and validity". The researchers state that this study is generalizable to Indiana Marketing Educators.

Results

Table 1 shows that the teachers had a wide range of teaching experience and the majority (68.2%, n=30) held a masters degree. Of the teachers, 41.0% (n=18) were from schools with a size of 601-1200. The locations of the schools included urban/inner city, suburban, medium/ small town, and rural.

Table 2 shows the marketing educators perception of how important the issues are to marketing education. The shortage of marketing educators in Indiana (M=4.31, SD=.90), the loss of marketing education programs due to teacher shortages (M=4.20, SD=.95), and school administration supports of marketing education programs (M=4.19, SD=.71) were the most critical issues

as perceived by the teachers. The least important issues were marketing education is fragmented by specialized courses (M=2.65, SD=.95) and should DECA change its name (N=2.27, SD=1.39).

Table 2 also shows that marketing educators agree most with the statements "The integration of academics should continue in Marketing Education" (M=4.32, SD=.56), "DECA should be integrated into the program" (M=4.27, SD=.92), "I have adequate opportunity for professional development" (M=4.09, SD=1.10), and "My school administration supports Marketing Education program development" (M=4.07, SD=.95). Marketing educators were most in disagreement with the statements "Student ethical conduct and morality is about the same as ten years ago" (M=1.82, SD=.97), "My Marketing Education program has difficulty getting support from the local business community" (M=2.16, SD=1.14), and "DECA should change its name" (M=2.34, SD=1.30).

Table 1
Number of Years Teaching and Education Level of Participants

Demographics	Number	Percent
Years Teaching Experience		
1-5	9	20.5
6-10	2	4.5
11-15	9	20.5
16-20	6	13.6
21-25	8	18.2
26-30	9	20.5
>30	1	2.3
Education Level		
4 Year Degree	11	25.0
Masters Degree	30	68.2
Specialist Certificate	3	6.8
Size of School		
<=600	5	11.4
601-1200	18	41.0
1,201-2000	16	36.2
>2000	5	11.4
Location of School		
Urban/Inner City	8	18.2
Suburban	11	25.0
Medium/Small Town	17	28.6
Rural	6	13.6
Missing	2	4.5

Table 2 provides a comparison of the importance the statement to marketing education with the amount of agreement the marketing educators had with the critical issue statement. The following statements: (a) "The scope of Marketing Education should be broad, rather than focused on specialized occupational areas", (b) "Advisory committees are essential for sound co-op programs", (c) "Students should be certified as to the competencies developed in our program", (d) "The students in my pro-

Table 2

Importance of Critical Issues, Agreement and Disagreement with Critical Issue, Comparison of Importance and Agreement to Marketing Education as Perceived by Marketing Educators

	Importance of Critical Issue to Marketing Education		Agreement and Disagreement with Critical Issue		Comparison of Importance and Agreement		
	M	SD	M	SD	t	df	p
Within five years, a shortage of Marketing Education teachers will create problems in Indiana.	4.31	.90	4.00	.99	2.08	41	.044
Marketing Education programs will be lost because of teacher shortages.	4.20	.95	3.59	1.04	3.28	40	.002
My school administration supports Marketing Education program development.	4.19	.71	4.07	.95	.66	41	.541
Marketing Education has done an effective job of marketing its programs and curriculum.	4.10	.79	3.32	1.14	3.92	41	.001
Student ethical conduct and morality is about the same as ten years ago.	4.10	.96	1.82	.97	9.03	41	.001
Marketing Education enrollment and programs will be lost because of competition.	4.02	.92	4.02	1.11	.000	41	1.00
I have adequate opportunity for professional development.	4.00	.85	4.09	1.10	-.51	42	.611
Marketing Education leadership is moving the profession in the right direction.	3.98	.97	3.41	1.09	2.91	39	.006
The integration of academics should continue in Marketing Education.	3.95	.66	4.32	.56	-4.77	41	.001
My Marketing Education program uses technology effectively.	3.93	.87	3.68	1.01	1.55	41	.129
Electronic commerce topics are integrated into our Marketing Education curriculum.	3.83	.76	3.55	1.13	1.35	41	.185
DECA should be integrated into the program.	3.81	1.04	4.27	.92	-4.16	41	.001
DECA is a strong and active student organization at my school.	3.75	.93	3.95	.97	-2.04	39	.048
The co-op program at my school places students in educationally sound training stations.	3.73	.91	3.46	1.17	1.04	37	.305
All Marketing Education programs should be required to offer DECA.	3.66	1.20	3.93	1.15	-3.13	40	.003
More career counseling needs to be done in Marketing Education courses.	3.62	.85	3.98	.79	-3.15	41	.003
The scope of Marketing Education should be broad.	3.58	.76	3.86	.96	-3.33	42	.002
Students should be certified as to the competencies developed in our program.	3.48	1.01	3.73	1.04	-2.08	39	.044
The students in my program reflect the demographic mix of students in my school.	3.44	.90	4.00	.89	-3.72	40	.001
My Marketing Education program has difficulty getting support from the local business community.	3.38	1.13	2.16	1.14	5.81	39	.001
All Marketing Education students should be required to participate in DECA.	3.24	1.16	3.30	1.32	-.44	41	.660
Advisory committees are essential for sound co-op programs.	3.18	1.22	3.64	1.16	-3.57	39	.001
Marketing Education curriculum should be uniform throughout the state.	3.17	1.12	3.25	1.28	-.16	41	.872

(table continued on next page)

(table continued)

	Importance of Critical Issue to Marketing Education		Agreement and Disagreement with Critical Issue		Comparison of Importance and Agreement		
	M	SD	M	SD	t	df	p
Marketing Education should focus on specialized courses and programs.	3.15	.94	3.45	1.11	-1.82	40	.076
My Marketing Education program benefits from an active business advisory committee.	3.15	1.11	3.20	1.21	-.68	40	.499
Marketing Education curriculum should be uniform nationally.	3.05	1.13	3.14	1.15	-.46	41	.645
The majority of Marketing Education students will go to a four-year college.	3.00	.63	3.18	1.19	-1.22	40	.229
Marketing Education is fragmented by specialized courses.	2.65	.95	2.68	1.20	-.48	39	.637
DECA should change its name.	2.27	1.39	2.34	1.30	-.264	36	.793

Note. Importance of Critical Issue to Marketing Education scale (5=critical, 4=very important, 3=important, 2=little importance, 1=no importance) and Cronbach's Alpha = .80. Agreement and Disagreement with Critical Issue (5=strongly agree, 4=agree, 3=undecided, 2=disagree, 1=strongly disagree) and Cronbach's Alpha = .65.

gram reflect the demographic mix of students in my school", (e) "The integration of academics should continue in Marketing Education", (f) "More career counseling needs to be done in Marketing Education courses", (g) "DECA should be integrated into the curriculum to achieve program goals and objectives", (h) "All Marketing Education programs should be required to offer DECA", and (i) "DECA is a strong and active student organization at my school" were significantly different. These statements were rated lower as importance to marketing education. However, the marketing educators were in higher agreement with the statements.

Table 2 also shows the following statements: (a) "Student ethical conduct and morality is about the same as ten years ago", (b) "Marketing Education has done an effective job of marketing its programs and curriculum", (c) "My Marketing Education program has difficulty getting support from the local business community", (d) "Marketing Education programs will be lost because of teacher shortages", (e) "Marketing Education leadership of moving the profession in the right direction", and (f) "Within five years, a shortage of Marketing Education teachers will create problems in Indiana" were significantly different. These statements were rated higher as a critical issue to marketing education and the teachers were lower in agreement with these statements.

Conclusions/Recommendations

The results of this study represent Indiana Marketing Educators. Objective one was to describe the marketing educators demographics. The teachers had 1 to over 30 years teaching experience, a majority held a masters degree, and the majority were in a comprehensive high school. The majority also had active DECA chapters and served as the advisor.

Objective two was to describe marketing educators perceptions of how important the issues are in marketing education. The teachers felt that teacher shortages, losing programs, and administrative support were the most critical issues. While the students going to four-year colleges, the fragmentation of marketing education by specialized courses, and DECA name change were the least important.

Objective three was to describe marketing educators level of agreement with current issues in marketing education. The marketing educators agreed most that academics should be integrated into academics, DECA should be integrated into a program, and marketing educators have adequate professional development. While they were in disagreement with, DECA should change its name, they have difficulty getting support from the local business community, ethical conduct and morality is about the same as ten years ago.

Objective four was to explore if there is a significant difference between the marketing educators perceptions of importance of the issue statement to marketing education and the level of agreement with the critical issue statement. Of the 29 statements 15 were significantly different. Of those statements, nine were rated lower importance to marketing education even though the teachers were in higher agreement with the statements. Six of the statements were rated higher as a critical issue to marketing education and the teachers were lower in agreement with these statements.

Outside of the issues facing program reduction, marketing education needs to address ethics. Teachers feel that over the past ten years students' ethical conduct has changed. Students need to have instruction to integrate ethics. Furthermore, teachers perceive DECA as an important part of marketing education programs and should continue its integration into academics.

Implications/Further Research

It is also suggested that more business educators take the opportunity with undergraduate students to teach the importance of being action researchers. Many different projects can be completed that provide students with the chance to conduct research that can be used in their field. This provides students with the chance to see how research can be used to answer questions as Bronner (1999) described and conduct classroom research that will "...addresses the "itch" that business educators want to scratch when considering answers to problems that address personal teaching issues as contrasted with theoretical or more global problems" (p. 191).

Since the population of this study was Indiana marketing educators, this study needs to be replicated on a national level to insure the findings can be generalized to marketing educators outside of Indiana. Further research also needs to be done to explore if there is a significant difference in rating of issues among groups such as gender, years teaching, and school demographics.

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Student Perceptions of Plateaus Encountered in Court Reporting Skill Building Classes

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Abstract

Court reporting teachers often perceive little or no progress at certain speed levels in the development of psychomotor skills in skill development classes, a phenomenon called plateaus. This study was conducted to determine student perceptions of plateaus often encountered in learning the psychomotor skill of court reporting. The students' perceptions were analyzed for relationships with the existence of plateaus, at what speed the plateaus occur, the type of dictation material on which they occur, and the duration of plateaus. The students' perceptions of factors that caused plateaus were reported also.

Introduction

Court reporting is commonly thought of as a narrow application of highly developed skills in machine shorthand. Beginning in 63 B.C., Marcus Tiro, a freed slave who became Cicero's secretary, used shorthand on wax-covered tablets to record a speech by Cato (Kocar, 1992). Since 63 B.C., many shorthand systems and materials have been used in an attempt to enable students to develop the skills necessary to report accurately every word spoken in the setting being reported.

The court reporting profession has been exposed to many challenging technologies over the last couple of decades, and now realtime technology (the steno-to-English translation process that occurs in the reporter's computer and appears instantaneously on the computer screen) is receiving the most attention. "Because realtime serves as the foundation for much of the technology currently being introduced into the courts, the demand for it has grown at a fast pace" ("Short takes," 1996, p.17). "Never before has our profession seen such an urgent need for our skills," said Carl Saucedo, president of the National Court Reporters Association (National Court Reporters Association News Release, December 21, 1999).

Many courts, as well as other environments such as classrooms, conventions, conferences, and freelance, are moving toward realtime in order to meet the access requirements of the Americans with Disabilities Act (ADA) of 1990. This makes it much easier for hearing-impaired persons to participate in the judicial process as well as other settings. With the passage of the Television Decoder Circuitry Act in 1993 (which requires that all television sets now sold with screens larger than 13 inches have decoder chips to allow the use of closed-captioning), the demand for closed captioning using realtime technology continues to explode.

Although the ADA was passed initially to benefit deaf and hard-of-hearing people, in reality, realtime reporting technology "is a

much more general aid to understanding oral communications" (Robson, 1997, p. 189). For instance, the *Daily News* of Woodland Hills, California, reported that realtime technology has also become a tool for immigrants trying to learn English and for children learning to read ("Short Takes," 1995, p. 58). It is easy to see the importance of skills using this technology since 40 million Americans were marginally or functionally illiterate in 1996, according to Baker (1999).

Review of Literature

Since there is a need for court reporting skills enhanced with technology to provide realtime services for hearing impaired persons, producing much-needed skills would seem to be a way to fill the many waiting jobs. How easy is it to assist students to learn to use a shorthand machine connected to a computer to identify two speakers alternately while writing 225 wpm with a minimum of 95 percent accuracy—one of the requirements for state and national certification? Not all court reporting students progress smoothly from zero speed to the high speed of 225 words per minute, and Certified Reporting Instructors (CRIs) refer to these periods of little or no progress as plateaus. (Sheets, 1999).

Plateaus are identified in psychomotor skills when a student successfully completes the requirement at one level of performance but then cannot progress beyond that attained level. In the physical education arena, Magill (1993) identified seven performance-related changes on a continuum from novice to the highly skilled performer. However, Magill (1993) described the achievement of the status of highly skilled performer as sporadic rather than smoothly proceeding from a novice performer. The improvement in skills included: (a) changes in the individual's knowledge structure of the skill; (b) changes in detecting and correcting errors; (c) changes in how the goal of skill is achieved; (d) changes in coordination; (e) changes in movement efficiency; (f) changes in muscles used to perform the skill; and (g) changes in visual attention.

Gallwey (2000) declared all learning, understanding, and proficiency of action to be the result of attention. Gallwey also stated that focus of attention is the one thing that excellence in sports and excellence in work share in common.

West (1983) discussed performance curves and plateaus in keyboarding and described plateaus as the periods of little or no apparent progress. Causes for these plateaus, a motivational phenomenon according to West (1983), were identified as follows: (a) declining motivation; (b) continued use of a no-longer appropriate work method; (c) sudden rather than gradual increase in task difficulty; and (d) persistent weaknesses the student cannot eliminate.

According to a definition derived by using the Delphi technique at a national court reporting teachers' workshop, a plateau can be said to exist when a student goes 13-19 weeks without passing a test at the goal speed. The existence of plateaus in court reporting education was perceived by 96.4 % of the Certified Reporting Instructors (CRIs) responding to a 1997 survey (Sheets, 1999). A great majority (94.4%) of the respondents felt that court reporting students experiencing one speed plateau were likely to encounter another speed plateau before completion of the program of study.

For example, court reporting students reach a plateau when they successfully complete the requirements to write shorthand from dictation and accurately transcribe that dictation into English at one speed but then cannot progress beyond the attained speed. Many students will plateau at one or more speeds before completing the court reporting major (Carruthers, Porter, & Vaughn, 1990). Certified Reporting Instructors' perceptions of speed plateaus and their duration were established in a recent study by Sheets (1999).

The existence of plateaus combined with the demanding nature of the course of study and other factors (Sheets, 1999) tend to result in a high dropout rate. High dropout rates of court reporting students cited by Morse (1989) and Kocar (1991) are of great concern. In fact, a May 1997 cumulative chart prepared by Gaede (1997) of the National Court Reporters Association (NCRA) using 1996 annual report figures indicated that 9,803 students were enrolled in 106 NCRA-approved programs. Of that number only 9.2% graduated in 1996.

A variety of factors contribute to this high dropout rate in court reporting programs. Carruthers, Porter, and Vaughn (1990) detailed the results of a survey in a community college where 93% of the court reporting students considered themselves to be nontraditional students with many concerns and responsibilities beyond the school setting. Schleich (1986) cited extraneous difficulties and poor language skills as the two most common reasons for dropping out of court reporting schools. Additional factors contributing to court reporting students' dropping out were speed plateaus and financial difficulty, according to Schleich (1986).

K. Moody (personal communication, April 1997) indicated that most students drop out of the court reporting major at a time when they are experiencing a plateau. S. Hayes (personal communication, April 1997) declared that plateaus are barriers to students completing the court reporting major, although there is anecdotal evidence of students completing the major after having experienced a plateau. Morse (1989) found a statistically significant relationship between ACT English scores and graduation from a court reporting program approved by the National Court Reporters Association (NCRA).

Purpose of the Study

The purpose of this study was to contribute to the body of knowledge regarding student perceptions of plateaus often encountered in learning the psychomotor skills of court reporting. The students' perceptions of speed plateaus were analyzed for any existing relationships with the nature of the plateaus: the existence of plateaus, at what speed the plateaus may occur, the type of dictation material on which they may occur, the duration of any plateau, and factors perceived to cause plateaus.

Statement of the Problem

Anecdotal evidence indicated that some, but not all, students enrolled in machine shorthand skill building classes would experience a speed plateau or plateaus at some speed level before completing a court reporting program. The problem of this study was to determine the perceptions of court reporting students regarding the nature of plateaus often encountered in learning machine shorthand skills. In addition, the study addressed the students' perceptions of factors causing them to experience a speed plateau. Five research questions designed to address this problem are reported in this article.

Research Question 1: In the perceptions of court reporting students, do students sometimes experience speed plateaus?

Research Question 2: In the perceptions of court reporting students, are there specific speed levels on which plateaus occur during student enrollment in court reporting programs?

Research Question 3: In the perceptions of court reporting students, is (are) there a type(s) of dictation material on which plateaus occur during student enrollment in court reporting programs?

Research Question 4: In the perceptions of court reporting students, what is the typical duration of any speed plateau?

Research Question 5: In the perceptions of court reporting students, what factors cause a student to experience speed plateaus?

Research Procedures

Court reporting students attending the National Court Reporters Association student seminar in Boston, Massachusetts, in July 1999 were the target population for this study. The total number of students attending was 69. A questionnaire was designed to collect students' perceptions of speed plateaus encountered in machine shorthand skill building classes. Content validity of a similar instrument (Sheets, 1999) was determined by a panel of three Certified Reporting Instructors. The instrument was pilot tested in June 1999 and revised based upon the evaluations received.

The revised instrument was administered to 69 court reporting students attending the student seminar at the annual convention of the National Court Reporters Association held in Boston, Massachusetts, in July 1999.

Research Findings and Results

Research Question 1: In the perceptions of court reporting students, do student sometimes experience speed plateaus?

In regard to Research Question No. 1, student responses indicated that 43 or 63.2% experienced a speed plateau and 25 or 36.8% indicated that they did not or had not experienced a speed plateau in a machine shorthand skill development class.

More than one plateau was encountered by 24 or 54.5% of the respondents to that item on the survey (Table 1) while 20 or 45.5% of the respondents did not encounter a second plateau. The reader will note that the frequency missing is one.

Table 1
Existence of First and Second Plateaus

Existence	First Plateau		Second Plateau	
	n	%	n	%
Yes	43	63.2%	24	54.5%
No	25	36.8%	20	45.5%
Total Responding	68	100.0%	44	100.0%

n = 68

Research Question 2: In the perceptions of court reporting students, are there specific speed levels on which plateaus occur during student enrollment in court reporting programs?

Students enrolled in court reporting classes are required to pass five minute tests of literary material at speeds ranging from 100 to 180 words per minute; jury charge material at speeds ranging from 100 to 200 words per minute; and question and answer or two-voice materials at speeds ranging from 100 to 225 words per minute. For purposes of this research study, students were asked if there were specific speed levels on which plateaus occurred during his/her enrollment in a court reporting program.

Findings from Research Question No. 2 are found in Table 2, which is a breakdown of the 43 respondents who had experienced a speed plateau. Data indicate that 12 or 27.9% of the respondents encountered a first speed plateau at 160-180 word per minute. However, the next most frequent response occurred at 100-120 words per minute (8, 18.6%).

Table 2
First Plateau Speed Level

Speed	Frequency	Percent
Less Than 100 wpm	4	9.3
100-120 wpm	8	18.6
120-140 wpm	7	16.3
140-160 wpm	7	16.3
160-180 wpm	12	27.9
180-200 wpm	3	7.0
200-220 wpm	1	2.3
More Than 220 wpm	1	2.3

The speed at which a second plateau occurred is shown in Table 3. For respondents experiencing it, the second plateau occurred at the 140-160 words per minute level (6, 28.6%), followed by the 200-220 words per minute level (5, 23.8%) with the third most frequently occurring response at the 160-180 words per minute level (4, 19.0%).

Table 3
Second Plateau Speed Level

Speed	Frequency	Percent
100-120 wpm	2	9.5
120-140 wpm	2	9.5
140-160 wpm	6	28.6
160-180 wpm	4	19.0
180-200 wpm	2	9.5
200-220 wpm	5	23.8

Research Question 3: In the perceptions of court reporting students, is (are) there a type(s) of dictation material on which plateaus occur during student enrollment in court reporting programs?

In Research Question No. 3, students were asked to indicate the type of dictation material on which plateaus occurred during their enrollment in a court reporting program. Dictation material used for testing at speeds from 100 to 225 words per minutes includes literary, jury charge, and two-voice testimony material. Respondents (21, 30.4%) indicated that literary dictation material was an area where a plateau was experienced (Table 4). Twelve (12, 17.4%) indicated jury charge material was an area where a plateau was experienced. Twenty-eight (28, 40.6%) indicated two-voice material was an area where a plateau was experienced. It is possible for a student to experience a plateau on more than one type of dictation material at the same time.

Table 4
First Plateau Dictation Material

Types of Material	Frequency	Percent
Literary	21	30.4
Jury Charge	12	17.4
Two Voice	28	40.6

Students who experienced a second plateau indicated that a second plateau occurred on two-voice dictation material most frequently (16, 23.2%), followed by jury charge (10, 14.5%) with students experiencing plateaus on literary material least frequently (9, 13.0%).

Table 5
Second Plateau Dictation Material

Types of Material	Frequency	Percent
Literary	9	13.0
Jury Charge	10	14.5
Two Voice	16	23.2

Research Question 3 was further analyzed by using a chi square test of independence; a chi square is used to test the significance between observed and expected or theoretical frequencies. (Slavin, 1992).

Table 6
Chi-Square Dependence Between Type of Dictation Material and First Plateau

Types of Dictation Material	Chi Square	N	Degrees of Freedom	P value
Literary	0.911	43	3	0.823
Jury Charge	0.964	43	3	0.810
Two Voice	14.835	43	3	0.002*

*Fisher's Exact Test (2-tailed probability) = .00126

Since more than 20% of the cells had expected counts less than five, then chi square analysis may not have been a valid test for literary and jury charge dictation material. A Fisher's exact test was run but failed to converge, which means that it failed to plot the shape of the distribution for this data making it impossible to calculate the exact probability for those chi squares.

Research Question 4: In the perceptions of court reporting students, what is the typical duration of any plateau?

Students were asked to respond to Research Question No. 4 and indicate the typical duration of any speed plateau. Their responses (Table 8) revealed that a typical duration of a first plateau was 20-26 weeks, as indicated by almost two-thirds (62.5%)

of respondents; 37.5% indicated a first plateau lasted for 26-52 weeks.

Table 7
Chi-Square Dependence Between Type of Dictation Material and Second Plateau

Types of Dictation Material	Chi Square	N	Degrees of Freedom	P value
Literary	4.531	21	3	0.210
Jury Charge	2.825	21	3	0.419
Two Voice	10.664	21	3	0.014*

*Fisher's Exact Test (2-tailed probability) = 0.013

Table 8
First Plateau Duration

Weeks	Frequency	Percent
20-26	25	62.5
26-52	15	37.5

Data in Table 9 show that 21 out of 69 students had experienced a second plateau. Twelve or 57.1% of the respondents with experience on a second plateau perceived the typical duration of a second plateau to be 20-26 weeks; 33.3% indicated the second plateau lasted 26-52 weeks, while 9.5% indicated the second plateau lasted more than 52 weeks.

Table 9
Second Plateau Duration

Weeks	Frequency	Percent
20-26	12	57.1
26-52	7	33.3
More Than 52 Weeks	2	9.5

Research Question 5: In the perceptions of court reporting students, what factors cause a student to experience speed plateaus?

Data in Table 10 reveal financial problems unrelated to course work were not considered major contributing factors to students' experiencing a plateau. However, 70% indicated that outside responsibilities contributed to their experiencing a plateau. Deficiencies in machine shorthand theory/technique contributed to 33.4% of respondents experiencing a plateau. At the same time, 62.5% of respondents indicated that too much pressure to meet requirements contributed to their experiencing a speed plateau, while 55% cited lack of discipline as a contributing factor. Also cited were inability to set goals and ineffective instruction. Dislike of shorthand classes, physical problems, and age were viewed as minor contributors to speed plateaus, as was lack of English skills.

Table 10
Factors Contributing to Speed Plateaus

Factor (n)	Not a contributor	Minimal contributor	Somewhat of a contributor	Major contributor	Sole contributor
Financial problems (41)	31 75.6%	4 9.8%	3 7.3%	3 7.3%	0 0.0%
Outside responsibilities (40)	6 15.0%	6 15.0%	11 27.5%	14 35.0%	3 7.5%
English deficiencies (42)	31 73.8%	8 19.0%	2 4.8%	1 2.4%	0 0.0%
Theory Deficiencies (42)	17 40.5%	11 26.2%	1 2.4%	12 28.6%	1 2.4%
Pressure/Stress (40)	10 25.0%	5 12.5%	13 32.5%	11 27.5%	1 2.5%
Lack of discipline (40)	12 30.0%	6 15.0%	12 30.0%	8 20.0%	2 5.0%
Inability to set goals (40)	18 45.0%	8 20.0%	13 32.5%	1 2.5%	0 0.0%
Ineffective instruction (42)	13 31.0%	9 21.4%	7 16.7%	10 23.8%	3 7.1%
Dislike of machine (40)	33 82.5%	3 7.5%	2 5.0%	2 5.0%	0 0.0%
Physical problems (41)	34 82.9%	2 4.9%	2 4.9%	2 4.9%	1 2.4%
Age (38)	30 78.9%	2 5.3%	6 15.8%	0 0.0%	0 0.0%

Conclusions

Based on the findings of this study, the researchers concluded the following:

More than half of the respondents experienced a speed plateau, the first of which occurred at 160-180 wpm, although the next most frequent response was 100-120 wpm. Responses indicated that the second speed plateau occurred at 140-160 wpm, so those reaching a second plateau at this speed must have reached a plateau at the lower speed first. Therefore, those who plateau at a speed lower than 160-180 wpm are likely to encounter a second speed plateau.

Two-voice dictation material was cited in both first and second speed plateaus. Literary dictation material followed two-voice material on the first plateau (30.4%), but jury charge dictation material (14.5%) followed two-voice dictation material on the second plateau with literary dictation material (13.0%) close behind.

A dependence existed between two-voice dictation material and the first plateau at a significant level of probability (.002). Also a dependence existed between two-voice dictation material and plateau two at a significant level of probability (.014).

Students viewed the typical duration of any speed plateau as 20-26 weeks.

Factors contributing substantially to speed plateaus in the students' perceptions were outside responsibilities (70%), pressure (62.5%), lack of discipline (55%), ineffective instruction (47.6%), inability to set goals (35%) and theory deficiency (33.4%).

Recommendations

The following recommendations are based on the findings of this study:

1. Those experiencing two plateaus tended to encounter the first plateau at a lower speed than those hitting only one plateau. To forestall the occurrence of plateaus, tutoring sessions could be incorporated along with the use of speed building tapes for extra practice outside the classroom.
2. Since two-voice material requires a different rhythm of writing from literary or jury charge when two speakers are involved (each of which must be identified by a written symbol which is not spoken), educators could suggest the use of a metronome in speed practice or in drills using very short questions and answers.

3. Instructors could provide counseling to students needing assistance in managing outside responsibilities.
4. Instructors could provide assistance to students in managing the pressure exerted by the continual demands for higher speeds by providing encouragement to students to attend lower speed building classes to build confidence.
5. Instructors could provide motivational speakers from the reporting field to help students set clear goals for becoming a court reporter. Mentoring through state and national associations and/or local reporters could also be helpful to students who have lost sight of their goals.
6. A further recommendation would be to expand the research to include a larger sample to better determine any relationships among the elements in this study.

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A Study of Management Training Program for the Middle-Level Managers

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Abstract

The major purpose of the study was to explore the courses of management training program (MTP) for the middle-level managers in Taiwan, R. O. C. The descriptive survey was designed to answer the research questions. The useable returns were analyzed by using frequency distribution, t-test, one-way ANOVA, and MANOVA. The results of the study should help businesses/industries, training institutions and schools well design curriculum of MTP for the middle-level managers. It also could reduce corporation's training cost and benefit employees to work more efficiently and effectively to meet the challenges in the new millennium.

Introduction

The development of economics and advancement of technology have rapidly occurred recently. In the dramatically competitive society, one of major factors decides a business organization whether successful or not depending on the quality and performance of managers. It also strongly influences a business organization's survival and development (Drucker, 1993). Especially, 3C (Change, Competition, and Complexity) age is arriving, businesses and industries face more dynamic environment challenges. Therefore, to pursue a leadership of industries, a company should strengthen the effectiveness of management and establish an unique teamwork to build up excellent competitive power in the 21st century.

Taiwan, Republic of China is a technology and capital intensive, industrial producing exporting, developed economy country. The government is aggressively promoting "the economic development project" and applying for membership of the "World Trade Organization (WTO)" (Hong, Sheu & Wu, 1998). The majority of businesses and industries are middle or small size corporations; therefore, most of supervisors or managers are promoted from entry-level. They are all excellent skilled-workers; however, they do face the shortage of supervised skills, management knowledge, interpersonal relationship skills, communication skills and leadership skills. As a result, management training program have become the important approach to enhance their management knowledge and abilities. On the other hand, managers also need to adapt new technology and information through training programs to update themselves in the new era.

Since the improvement of employees' working quality has become an essential issue, Taiwan's government and businesses/industries pay more attentions to human resource management

and development. Many training programs have been provided by public and private agencies. According to a top 100 corporations investigation in Taiwan, R. O. C., the management training program (MTP) was the most popular training program for the middle-level managers in businesses and industries (Shiau, 1996). Thousands people attend management training programs yearly. Especially, management development plays an important role in the organizational training. Management development is any attempt to improve managerial performance by imparting knowledge, changing attitudes and increasing skills. The purpose of managerial development would enhance the future performance of the organization itself (Dessler, 2000).

Taiwan's Vocational and Training Bureau adapted MTP from Japan for the middle-level managers training that provides well-designed curriculum to equip management knowledge and skills. The major function of MTP is to build up commitment of organization, improve the structure of management, and increase performance. MTP are very popular and contributive, so there have been more than one million people attending it and ten thousands people still join it yearly in Japan (Ten, 1996). In general, MTP is accepted by Taiwan's businesses and industries. However, there are still some parts of curriculum and teaching materials that are not totally suitable in Taiwan's organizational culture and workplace (Shiau, 1996). The researchers believe that there is a need to establish Taiwan's own MTP because of the differences in the countries, social, economic, and working environment needed to be concerned.

Purpose

The major purpose of the study was to explore the courses of management training program (MTP) for the middle-level managers in Taiwan, R. O. C. The descriptive survey was designed to answer the following research questions:

1. What courses should be included in the management training program for the middle-level managers in Taiwan, R. O. C.?
2. What is the perceived important of courses of management training program for the middle-level managers held by business and industrial participants in Taiwan, R. O. C.?
3. Are there any significant differences in the perceptions of the courses of management training program for the middle-level managers among different participants' demographic information in Taiwan, R. O. C.?

The results of the study should help businesses/industries, training institutions and schools well design curriculum of management training program for the middle-level managers. As a result, it could reduce corporation's training cost as well as benefit employees to work more efficiently and effectively to meet the challenges in the new millennium.

Methodology

The data needed to address the intent of this study was gathered by a self-designed survey questionnaire. The questionnaire included demographic information (gender, training instructor, age, years of working experience, level of education, number of corporation's employees, current working department, and job position) and five courses domains (interpersonal and communicational skills, technical skills, management function, coordinating and negotiating skills, and conceptual skills domains). A five-point Likert-type scale for responding to each of the 39 courses, rating from "very important" (5) to "not important" (1) was used. Both reliability and validity of the self-designed instrument were high. The Cronbach's α of the important rating of five course domains was 0.9519. The results of the factor loading analysis were considered positive. The 39 items had a factor loading between 0.4546 to 0.8578. The target populations consisted of managers, training instructors, and human resource specialists in Taiwan, R. O. C. The sample size of the study was 600 participants who were randomly surveyed from a list of elected honor supervisors (managers, training instructors, and human resource specialists) of Middle and Small Corporations in the Department of Economic from 1996 to 1998. The p value at 0.05 level of significance was used. Two hundred and seventy-six (44.5% of samples) useable returns were analyzed by using frequency distribution, t -test, one-way ANOVA, and MANOVA. Also, demographic data was used to help further analyze the findings.

Findings and Results

Of the 276 businesses and industries respondents, nearly fourth-fifth (79%) of respondents were male, and one-fifth (21%) of respondents were female. The majority of respondents (62%) have not been training instructors. More than one-fourth of respondents (26.1%) were twenty-nine to thirty-five years old; less than 30-year-old respondents were only 10.9%. About one-fourth

(24.6%) respondents had five to ten years of working experience. Almost 40% of respondents had college degree education background. More than half (51%) of respondents who were working in manufacturing industry. Two-fifth (42.8%) respondents' corporations only had fifty or less employees. Close to one-fourth (24.3%) respondents were working in the departments of marketing, R&D, and sales. Over two-fifth respondents were the middle-level managers.

Based on the data supplied in the returned questionnaires, the importance ratings of management training program courses for the middle-level managers were high. The average rating of importance for the 39 courses was 4.13 on a 5.0 scale. This rating was in the range between important (3) and very important (5). The course rated the most important by businesses and industries participants (mean = 4.51 on a 5.0 scale) was course 1—Employees Selection and Training (Table 1). The course rated the least important by businesses and industries participants (mean = 3.65 on a 5.0 scale) was course 31—Organizational Design (Table 2). The 39 courses were grouped into five domains by the result of factor analysis. MTP should contain five domains including "Interpersonal and Communication Skills", "Technical Skills", "Management Function", "Coordinating and Negotiating Skills", and "Conceptual Skills" domains. The highest domain was "Interpersonal and Communication Skills" domain (4.30) and "Conceptual Skills" domain (3.92) was the least important (Table 3).

MANOVA was used to analyze the important rating of five domains of MTP for the middle-level managers. The eight dependent variables were demographic related variables—gender, training instructor, age, years of working experience, level of education, numbers of corporation employees, current working department, and current position. The result indicated except "years of working experience" and "current working department" variables that there were all significantly different among five domains.

Gender

There were statistically significant differences across five domains except "Coordinating and Negotiating Skills Domain." Female participants perceived most domains much important than male participants did. Different gender participants perceived significant differences ($p < 0.01$) in "Conceptual Skills Domain—Corporation Reengineering and Management, Learning Organization Development, Motivation of Creativity, Project Management, Authorized Skills, and Presentation and Meeting Skills" courses. In "Interpersonal and Communication Skill" Domain, different gender perceived significant differences ($p < 0.05$) in "Employees Motivation", "Problem Analysis and Solving", "Stress and EQ Management", and "Roles and Functions of Supervisors" courses. In "Management Function" domain, different gender perceived significant differences ($p < 0.05$) in "Internal Control and Auditing", "Strategic Planning and Management", "Human Resource Planning and Recruitment", "Appraising Performance", "Compensation and Incentives", and

Table 1

The Means, Standard Deviations and Ranks of Importance of the Top Ten Courses of Management Training Program for the Middle-Level Managers in Taiwan, R.O.C.

	Course	Mean	SD	Rank
1.	Employees Selection and Training	4.51	0.62	1
14.	Employees Motivation	4.47	0.58	2
23.	Customers Complaint Services	4.43	0.62	3
35.	Communication and Coordinating	4.42	0.60	4
2.	Internal Control and Auditing	4.41	0.63	5
3.	Policies Making and Implementation	4.40	0.70	6
15.	Cost Management	4.40	0.68	7
16.	Problem Analysis and Solving	4.40	0.62	8
6.	Total Quality Control	4.38	0.64	9
28.	Objectives Management	4.32	0.63	10

Table 2

The Means, Standard Deviations and Ranks of Importance of the Bottom Ten Courses of Management Training Program for the Middle-Level Managers in Taiwan, R. O. C.

	Course	Mean	SD	Rank
8.	Learning Organization Development	3.93	0.79	30
17.	Project Management	3.92	0.70	31
22.	Public Relations Skills	3.92	0.77	32
19.	Financial Reports Analysis	3.92	0.86	33
33.	Presentation and Meeting Skills	3.91	0.68	34
20.	Procedures Control	3.91	0.69	35
12.	Human Resource Planning and Recruitment	3.89	0.73	36
9.	Reform Management	3.75	0.79	37
37.	Proposal Policies Design	3.73	0.74	38
31.	Organizational Design	3.65	0.84	39

Table 3

The Means, Standard Deviations and Ranks of the Importance of Courses Domains of Management Training Program for the Middle-Level Managers in Taiwan, R. O. C.

Course Domain	Mean	SD	Rank
Interpersonal and Communication Skills	4.30	0.82	1
Technical Skills	4.19	0.57	2
Management Functions	4.17	0.88	3
Coordinating and Negotiating Skills	4.16	0.79	4
Conceptual Skills	3.92	0.89	5

"Risk Management." In addition, female participants perceived significant higher than males did in "Policies Making and Implementation" course ($p < 0.01$) and "Yearly Business Operation and Budget Plan", "Analysis of Financial Reports", and "Procedures of Control" ($p < 0.001$). In "Technical Skills" domain, female participants perceived significant differences in "Total Quality Control" course ($p < 0.05$) and "Computer Application Practices" course ($p < 0.01$).

Training Instructor

The participants without training instructor experience rated the five domains significantly higher than the participants with training instructor experience in "Conceptual Skills" and "Coordinating and Negotiating Skills" Domains. Then, a t-test was used to analyze the differences between the two groups. The experienced training instructors participants viewed MTP courses

significantly higher ($p < 0.05$) than no training instructors experience participants in "Conceptual Skills domain—Reengineering and Management, Organizational Design, and Authorized Skills" but "Motivation of Creativity" course just opposite. Also, the participants without any training instructor experience perceived significantly higher than experienced training instructor participants did in "Coordinating and Negotiating Skills domain—Business Negotiating Skills ($p < 0.01$) and Sales Practices Skills ($p < 0.05$)" courses.

Age

In general, the participants "age under 30" group perceived significantly ($p < 0.001$) higher rating of importance of five domains than "age 30 to 35" group did in "Coordinating and Negotiating Skills Domain—Customers Complaint Services" course.

Level of Education

The participants with college degree viewed the "Conceptual Skills domain—Authorized Skills course ($p < 0.01$); Technical Skills—Total Quality Control course ($p < 0.05$)" significantly higher than the participants with graduate degrees did. However, "Technical Skills domain—Proposal Writing" course was viewed significantly ($p < 0.05$) higher by the participants with junior college degrees than high school graduates did.

Numbers of Corporation Employees

The participants were working for employees with "under 50" size corporations perceived significantly ($p < 0.01$) higher than the participants working in employees with "50 to 500" size corporations did in "Coordinating and Negotiating Skills Domain—Sales Practices Skills" course.

Job Position

Different job positions of the participants perceived MTP five domains pretty similar in "Interpersonal and Communication Skills, Technical Skills, Management Functions" courses domains. However, the "Coordinating and Negotiating Skills and Conceptual Skills" domains were perceived significant differences. After a Scheffé test was used, the entry-level managers had significantly ($p < 0.05$) higher rating of the importance domain in "Coordinating and Negotiating Skills—Career Planning" course than the top-level managers did. The top-level managers had significantly (0.001) higher rating of the importance in "Coordinating and Negotiating Skills—Sales Practices Skills" course than the middle- and entry-level managers did.

Years of Working Experience and Current Working Department

There was no significantly different in the perceptions of the importance of MTP courses for Taiwan's middle-level managers among the participants of different "years of working experience" and "current working department."

Discussions and Conclusions

Based upon the analysis of the data obtained from the research participants of business and industrial managers, experienced training instructors, and human resource specialists, management training program for the middle-level managers must contain five domains including "Interpersonal and Communication Skills", "Technical Skills", "Management Function", "Coordinating and Negotiating Skills", and "Conceptual Skills" courses domains. All of them composed of thirty-nine courses were required for the middle-level managers' training program in Taiwan, R. O. C.

All of the participants had a high perception regarding the importance of MPT courses for the middle-level managers in Taiwan, R. O. C. The participants perceived "Interpersonal and Communication Skills" domain was the most important and "Conceptual Skills" domain was the least important in MTP for the middle-level managers. The result of this study is consistent with Katz's theory (Katz, 1995). He believes interpersonal domain is the most important aspect for the middle-level managers. Indeed, "Interpersonal and Communication Skills" courses domain is very popular in training institutes around Taiwan, R. O. C.

Female participants perceived most of MTP courses for the middle-level managers more important than male participants did. Becker's human capital theory (Becker, 1993) indicated that females had been treated unfair in workforce in the past. Recently, female employees have become more active in the workplace. Indeed, the trend shows that female managers also play an important role in businesses and industries. Most female managers are eager to equip themselves to perform well in their jobs. Therefore, they had a high perception regarding the importance of MPT courses for the middle-level managers in Taiwan, R. O. C.

The participants with no experience as training instructors perceived "Conceptual Skills—Reengineering and Management, Organizational Design, and Authorized Skills" more important than experienced training instructors did. One reason may be the experienced training instructors paid more attention to training work, but they had less changes to deal with reengineering management, organizational design or authorized skills. Therefore, they viewed these courses lower important of rating. However, the experienced training instructors viewed "Motivation of Creativity" course more important than the participants without training instructors experience did. The experienced training instructors may have more opportunities to contact creativity related topics during their training jobs, so they realized creativity was one of the major factors to be successful for the middle-level managers and their corporations.

The participants with "age under 30" group perceived the importance of rating in "Customers Complaint Services" of MTP courses higher than "age 30 to 35" group did. In general, young people just enter workplace may need more interpersonal skills

to assist them to work smoothly and successfully. However, the majority of young people usually are lack of well-rounded interpersonal skills and dealing with people's problems, so they did perceive "Customers Complaint Services" course more important than the mid-age participants did.

The participants with junior college degrees had higher perceptions of the importance of MPT courses in "Authorized Skills and Total Quality Control" courses than the participants with graduate degrees, and in "Proposal Writing" course than high school graduate group did. The participants with junior college degrees had less information of management concepts and skills from schools, so they may need more "Authorized Skills", "Total Quality Control", and "Proposal Writing" courses to equip themselves to work more effectively and efficiently.

The results of the study should help Taiwan's businesses/industries, training institutions and schools well design curriculum of management training program for the middle-level managers. Furthermore, it could reduce corporation's training cost as well as benefit employees to work more efficiently and effectively to meet the challenges in the 21st century.

Recommendations

As a result of the study, the following recommendations were made:

1. The five domains including 39 courses of MTP for the middle-level managers would be beneficial for businesses and industries providing related training programs for the middle-level managers in Taiwan, R. O. C.
2. The training institutes or training departments could select the higher priority of MTP courses domains to design a needed program for the middle-level managers.
3. The result of the study showed that female participants generally had higher perceptions of MTP courses than male participants did. Therefore, training institutes or training departments could provide the needed courses for female employees.
4. The further research could conduct the outline of each MTP course to provide as references for the middle-level managers training program.
5. The further research could compare the different needs of MTP courses for the middle-level managers among different industries.
6. It would be useful and necessary to conduct further research of training management program for top-level managers.

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The Top Five Communication Skills Needed by Information Systems Graduates as Perceived by Information Systems Professionals

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Abstract

The need for system analysts, a mainstream information systems job, has increased 76% between 1988-2000. Additionally, while the supply for system analysts, system programmers, network planners, and software engineers is short, the supply will get even smaller in the coming years (Zawacki, Scott, Kawacki, 1988). There is no question that IS is a career in high demand; therefore, it is necessary to determine the needed skills on which IS majors should focus. This nationwide study involving 500 Association of Information Technology Professionals determined the top five communication skills needed by IS graduates.

Literature Review

In the past, information systems was thought of more as a provider of goods, reports, or data transactions; however, it is now looked at as a provider of services (Watson, Young, Miranda, Robichaux, Seerley, 1990). When the information systems (IS) graduates are working with the end-users, they are expected to be involved in training and consulting. Therefore, the need for good communication skills is essential.

Several studies focused on the communication skills needed by new employees. Jiang, Udech, and Hayajneh (1994) found that business recruiters included three communication skills in the top thirteen employee skills most highly valued by employers. The three communication skills were oral, written and interpersonal skills. Oral communication was consistently identified by middle managers as the most important competency in evaluating entry level employees (Maes, Weldy, and Icenogle, 1997). The four oral communication skills identified as most important for entry level jobs were following instructions, listening, conversing, and giving feedback.

Additional studies narrowed their focus to communication skills needed by IS employees. In one study (Everett, 1988), members of Association of Information Technology Professionals (AITP) were asked to name essential skills for new IS employees. Communication and interpersonal skills were two that were rated as essential. Albin and Otto (1987) surveyed Management Information Systems (MIS) directors who indicated that business communication skills were important for IS majors. In fact, they found that "no other question in the survey generated as strong a response as this item" (18).

Watson, Young, Miranda, Robichaux, and Seerly (1990) surveyed 25 members of their university's MIS Advisory Board which represented a wide spectrum of firms. Survey results indicated that in both systems analysis and end-user support categories, business communication and interpersonal skills were seen as imperative. Findings indicated that end-user support personnel and systems analysts must be able to communicate thoughts verbally and in writing.

Insley, Becker, and Breshears (1996) surveyed IS managers to determine their perceived level of importance of six specific communication skills. These skills were listening, reading, speaking, writing, presentation, and non-verbal. All were noted as important; however, listening, reading, and speaking were determined to be of highest importance. A study that focused on programmers discovered that communication skills were as important as computer skills in order to be successful employees (Feldman, 1998).

Other studies focused on the results of poor communication and how to improve one's communication skills. Four ways to improve communication skills included treating listening as an active, not a passive skill; keeping information simple and easy to understand; being able to answer the five Ws - who, what, when, where, and why; and repeating information in several different ways (Birkland, 1992). Pollock (1999) explained several additional ways to improve communication such as avoiding ambiguity, being explicit, and avoiding double meanings. A study in the TMA Journal (Interpersonal, 1999) noted that "interpersonal and communication skills can make or break your career success in the office of the future" (53).

The importance of communication skills was also emphasized by Landolt and Gilpatrick (1999) as "people aren't afraid of technology; they're afraid of what they don't know. It is our [IS professionals] job to explain it in a way that it becomes something they do know, something comfortable" (7). Using clear, everyday language and being able to explain technology components and concepts is necessary when working with end-users. Biggs (2000) found that the bulk of information systems projects fail as a result of poor communication.

Purpose

The purpose of this study was to determine the top five communication skills deemed most important for IS graduates as perceived by IS professionals. The students were defined as those who hold a Bachelor's degree in IS. Information systems professionals were defined as members of AITP.

Method

The researcher-developed survey instrument consisted of 15 specific communication skills relevant to the IS area. These skills were obtained from the findings of a previous study completed by the researchers (Crews & McCannon, 2000). The previous study found the top five communication skills in each of three communication areas (written, oral, and interpersonal) as determined by information professionals.

The survey instrument was mailed to 500 members of the AITP in three rounds. Association of Information Technology Professional members were chosen as the population because they are many times the decision-makers in the hiring of IS applicants, and they were the population in the previous study. The rate of response was twenty-three percent.

From the list of 15 communication skills, the respondents chose and ranked the top five skills that they perceived as the most important communication skills for IS graduates. The responses were then weighted. A respondent's first choice was given five points, second choice four points, etc. The points for each choice from all the respondents were summed and then ranked from highest to lowest points received. Each skill could have received a maximum of 485 points if all respondents had given it top ranking. Demographic information was also requested from the participants.

Findings

Demographics

The following demographic information provides an overview of the respondents:

Seventy-eight percent of the respondents were male while 22% were female. Sixty-four percent had over 21 years of experience and 17% had 16-20 years of experience. Twenty-seven percent worked in a service type industry; however, the largest percent-

age (31%) marked "Other" and there were a variety of industries mentioned including aerospace, health, insurance, and utilities. Fifty-five percent of the respondents held bachelor's degrees and, of those, 34% graduated with a degree in business. Thirty-three percent held master's degrees and, of those, 43% graduated with a degree in business. Seven percent held doctoral degrees and, of those, 29% graduated with a degree in information systems.

Skills Needed

The following are the top five communication skills needed by IS graduates as perceived by IS professionals:

1. Listen Effectively	367 points
2. Write Clear Directions or Instructions	169 points
3. Give Clear Directions or Instructions	122 points
4. Give Briefings to Colleagues/Superiors as Individuals	112 points
5. Write Software Documentation	100 points

Conclusions and Recommendations

From the findings, one can conclude that IS graduates must incorporate oral, written, and interpersonal skills to be effective employees. A business communication course in an undergraduate business or IS degree program normally covers these topics in varying degrees of emphasis. However, IS graduates must also acquire communication skills specific to the IS field such as writing software documentation and delivering oral briefs. It is necessary for IS professors to integrate these skills into the IS major program area. This integration lends itself well to a collaborative effort among professors of business communication and information systems.

Effective listening was overwhelmingly ranked the most highly needed communication skill. Many IS professionals spend time receiving information from end-users. If listening skills are lacking, the end-user's concerns may not be dealt with properly. This skill could be improved through business communication and other IS courses by incorporating listening inventories, role playing, or group case studies.

As IS professionals are active in the writing of step-by-step instructions for end-users, writing clear directions or instructions was ranked the second most important communication skill. It is obviously important for IS professors to include activities that emphasize clear and coherent directions. Activities could include requiring students to write how-to guides or end-user manuals. Students could also be provided with poor guides or manuals and required to improve and revise them.

For an IS professional to be effective, they must integrate listening and clear writing along with the third ranked communication skill of giving clear directions or instructions. Many IS professionals must give directions either face-to-face or over the telephone; therefore, they must be able to communicate clearly

and accurately on the end-user level. Students can practice this skill by giving each other directions for a simple process without any non-verbal cues or hands-on help. Many times students can use their previously written directions and test them orally.

The first three skills dealt with the ability to communicate primarily with the end-user. However, IS professionals must also be able to communicate effectively with their colleagues and superiors. Being able to give briefings succinctly and accurately enhances teamwork, saves valuable managerial time, and promotes clear horizontal and vertical communication. Students should be able to give brief (3-5 minute) oral reports or impromptu briefings on project progress.

The communication skill most specific to IS was write software documentation. This skill is definitely not covered in a general business communication course. It must be incorporated in the IS curriculum. Students in an IS program probably spend much of their time learning and writing programming code or managing data. Professors must insist that students spend an equal amount of time writing accurate supporting documentation. Assignments should not be limited to writing only code but must include documentation to explain and support the code or how to manage the data. Student projects could be exchanged and tested by peers.

As IS professors know that technology changes rapidly, they must constantly update their curriculum to ensure that their students have the technical knowledge and skills that employers want. By using the results of this study, IS professors can also ensure that their students have the communication skills that employers want.

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Trends Occurring in Business and Industry Regarding Information Systems and Technologies

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Abstract

This national study examined information technology trends and systems used in business. Use of established formal policies for various areas of information systems including the Internet, email, disaster prevention/recovery, and access and security of electronic information were identified as well as use of different media for working and backup documents. A chi square test of independence showed significant dependencies between size of the company and (1) use of data warehouses, (2) existence of a formal policy for the use of the Internet, (3) use of film as a storage medium for working documents, and (4) use of film as a storage medium for backup documents.

Nature of the Study

The field of information systems is constantly changing due to the many technologies that are making an impact on end-user computing, multimedia, electronic communications, office information systems, and other organizational business processes. These changes in the business environment are bringing about dramatic organizational redesign and reengineering. "As we embark on a new century, a powerful convergence of technological, economic, and social trends are altering the very nature of work" (Wagner, 2000, p. 2).

These changes also bring about an enormous challenge for educators to keep up to date with the trends occurring in business and industry. "Colleges and universities must be prepared to launch degree or certificate programs that can be deployed quickly [and] that are flexible . . ." (Knowledge and Skills, 2000, p. 4). The challenge involves identifying the trends and technologies, learning the skills and knowledge necessary to teach these technologies, and then incorporating them into the curriculum. "An enormous challenge facing higher education is IT staffing—hiring, retraining, and training people required to serve the ever-growing demands for information technology" (McCandless, 1999, p. 53).

The goal of all computer-related programs of study is to remain abreast of the many changes, challenges, and trends occurring in the information technology environment and to offer a curriculum which encompasses the requirements of the current workforce. It is imperative that as information technologies continue to evolve, educators identify the trends and technologies used in business and industry and strive to provide curricula that will help students develop a better understanding of these technologies.

Purpose of the Study

The technological impact on business and industry continues to occur, and incorporating technology into the workforce broadens the scope of jobs and redefines responsibilities for workers. Workers must therefore be educated to meet the changing needs of the workforce. The proliferation of technology that has affected business and industry has impacted the educational arena as well. One way for educators to stay abreast of the changes is to conduct research to identify the directions companies are taking and systems they are using. Therefore, the purpose of this study was to contribute to a better understanding of the trends and technologies occurring in business and industry, to assimilate this information to update equipment, curriculum, and faculty, and to strive to prepare students for the world of work.

Research Questions

Answers were sought to the following research questions:

1. What are some of the information technology trends and systems used in business and industry?
2. What are some of the information technology policies and procedures occurring in business and industry?
3. Is there an association between the information technology trends, systems, and policies occurring in business and the size of the company?

Research Procedures

In order to identify the technologies incorporated in the workplace and enhance course curricula, a national research study was undertaken during the summer of 2000. A survey

instrument was designed, pilot tested, and field tested. Adjustments were made to the initial instrument to incorporate suggested changes based on the pilot and field testing. The final instrument contained a demographics section, a section on technologies utilized in business and industry, a section on trends and policies utilized in business and industry, and a section on technical and nontechnical skills and knowledge needed by IS and IT graduates.

The target population of the study was members of the Association of Information Technology Professionals (AITP). The instrument was sent to 620 randomly selected members of AITP. One hundred ten instruments were returned; however, the results were compiled from the 103 completed instruments. The responses for each survey were coded onto a computer sheet for optical scanning, and analyses were completed using the Statistical Analysis Systems, Version 6.07.

Findings and Results

Demographic Information

There were 103 survey instruments that were analyzed statistically. Some questions were not answered by all 103 respondents, but all of the questions regarding the respondents' personal characteristics of job title, age, gender, years of experience, and educational level as well as the company's type and size were answered by at least 99 of the individuals.

Job Title

Twenty-three percent of the respondents were information systems managers/administrators; 14% were chief information officers; 14% were information systems analysts; 10% were programmers/programmer analysts; 2% were communications/network managers, and 1% was a database designer/developer and 1% was a personnel/human relations manager. Thirty-five percent indicated they had a job title which fell in the "other" category. Of these, 9 were educators, 8 were managers in a business-related functional area, 7 were consultants, and 3 were CEOs. Also, there was one individual in each category of information security analyst, IS trainer, information processor, research analyst, chief technology officer, IS senior advisor, and sales engineer, and one individual who was retired.

Age

With regard to age, only 6% of the respondents were 35 years of age or under; 26% were 36 to 45; 42% of the respondents were in the age range of 46 to 55; and 26% were over the age of 55.

Gender

Of the 99 individuals responding to this question, 30% were female and the remaining 70% were male.

Years of Experience

When asked how many years of experience the respondents had in this profession, 10% responded 1 to 10 years; 23% had 11 to 20 years; 42% had 21 to 30 years; 21% had 31 to 40 years, and 5% had more than 40 years of experience.

Level of Education

Regarding education, 22% of the respondents had some college credit; 41% had a bachelor's degree; 8% had some graduate credits; 21% had a master's degree, and 8% had doctoral degrees.

Company Type

The respondents were given 10 choices to mark when indicating the classification that best described their type of company. Twenty percent indicated a company classification of financial services, 14% were consulting/marketing, 13% were in information technologies, 11% were government, 10%, were agriculture/mining/manufacturing, 4% were communications/transportation, and another 4% were marked hospital/medical facility. Twenty-five percent of the respondents marked the "other" category. Thirteen were educational institutions, 4 were chemical/pharmaceuticals, 3 were utilities, 2 were printing/publishing companies, and there was one credit bureau, a value-added reseller and a non-profit organization. When asked if the company did business on an international basis, 65% marked no; 19% marked yes and indicated they had sites outside of their country; 12% also marked yes, but indicated all company sites were located within their country; and 1% did not know.

Company Size

Thirty-three percent indicated their company had less than 100 employees; 28% had 101 to 500 employees; 9% indicated 501 to 1000 employees; 12% employed 1001 to 1500 people; another 4% had 1501 to 2000 employees, and 15% employed over 2000 individuals.

Research Question 1

The first research question was: What are some of the information technology trends and systems used in business and industry?

When respondents were asked to indicate the types of business trends that have occurred in their businesses in the last two years, 40 (38.8%) respondents marked outsourcing and 21 (20.4%) indicated reengineering. Responses to this question can be found in Table 1.

Table 1
Business Trends Experienced in Business and Industry

Trends	Number	Percent
Outsourcing	40	38.8
Reengineering	21	20.4
Downsizing	10	9.7
Enterprise Resource Planning	19	18.4
Alliances/Joint Ventures	18	17.5
Other	8	7.8
None of the above	25	24.3

In relation to the type of business systems used within the various companies surveyed, 54 (52.4%) indicated management information systems and 52 (50.5%) marked transaction processing systems. Table 2 is a compilation of responses to the types of business systems used.

Table 2
Business Systems Used in Business and Industry

Systems	Number	Percent
Transaction Processing Systems	52	50.5
Management Information Systems	54	52.4
Decision Support Systems	25	24.3
Artificial Intelligence Systems	5	4.9
Other	1	1.0
None of the above	18	17.5

Respondents were asked which database systems their company employed. The most often selected database system used by a company was a relational DBMS, with 84 (81.6%) marking this choice. Respondents were given several choices, which are shown in Table 3.

Table 3
Database Systems Used by Business and Industry

Systems	Number	Percent
Relational DBMS	84	81.6
Non-Relational DBMS	25	24.3
Object Oriented DBMS	15	14.6
Data Warehouse	24	23.3
Online Analytical Processing (OLAP)	3	2.9
Data Mining	11	10.7
Other	2	1.9
None of the above	6	5.8

Research Question 2

The second research question was: What are some of the information technology policies and procedures occurring in business and industry?

Respondents were asked if their companies had established formal policies in various areas. Well over a majority had policies in all the areas listed. Those areas included disaster prevention, disaster recovery, access to electronic information, security of electronic information, ownership of email, and use of the Internet. While 97% marked that their company had an Internet connection, only 82% said they had established formal policies for its use. The types of policies that existed in the companies with regard to use of the Internet are shown in Table 4.

Table 4
Existing Policies Regarding Use of the Internet

Restrictions	Number	Percent
Hours to be accessed	5	4.9
Certain web sites	39	37.9
Job title/position	18	17.5
Amount of time	1	1.0
Personal use	34	33.0
No restrictions	26	25.2
Do not know	4	3.9
Other	8	7.8

Other information was gathered regarding the types of storage that were used within the company for working documents and backup documents. Electronic media was the type of storage used most often for working and backup documents. Paper and film were used for both but to a lesser degree.

Research Question 3

The third research question was: Is there an association between the information technology trends, systems, and policies occurring in business and the size of the company?

This research question was answered by use of a chi square test of independence. A chi square is used to test the significance between the observed and expected or theoretical frequencies (Slavin, 1992).

There were 35 different trends, systems, and policies listed throughout the survey instrument. Respondents were asked to indicate which of these had been incorporated in their businesses. A chi square was run to determine if there were any significant associations between these trends, systems, and policies based on the size of the company. In order to avoid making a Type I error, the researchers used the Bonferroni adjustment, which involves dividing the experiment-wise alpha rate by the number of contrasts made. The experiment-wise alpha of 0.05 was divided by 35, which gave a contrast-wise alpha of 0.001. Since a chi square may not be a valid test when expected cell counts are less than 5 for more than 20 percent of the cells, a Fisher's exact test was run; however, on many it failed to converge. Therefore, in Table 5 the regular probability was reported except on those that were significant which show the Fisher's exact probability.

The chi square test of independence showed a significant association between the size of the company and (1) the use of data warehouses, (2) the existence of a formal policy for the use of the Internet, (3) the use of film as a storage medium for working

documents, and (4) the use of film as a storage medium for backup documents. No dependencies were attributed to the other 31 trends, systems, and policies as are shown in Table 5.

Table 5
Dependencies of Trends, Systems, and Policies on Size of the Company

Trends, Systems, and Policies	Chi Square Value	p	n
Outsourcing	9.109	0.108	101
Reengineering	9.922	0.077	101
Downsizing	8.062	0.153	101
Enterprise Resource Planning	7.006	0.220	101
Alliances/Joint Ventures	5.663	0.340	101
Transaction Processing Systems	12.214	0.032	101
Management Information Systems	15.193	0.010	101
Decision Support Systems	7.813	0.167	101
Artificial Intelligence Systems	8.250	0.143	101
Relational Database Management Systems	7.154	0.209	101
Non-Relational DBMS	9.125	0.104	101
Object Oriented DBMS	3.035	0.695	101
Data Warehouses	20.555	0.0008*	101
Online Analytical Processing	10.016	0.075	101
Data Mining	5.213	0.390	101
Disaster Prevention Policies	13.528	0.196	94
Disaster Recovery Policies	6.610	0.251	89
Access to Electronic Information Policies	10.108	0.431	94
Security of Electronic Information Policies	4.769	0.445	88
Ownership of Email Policies	18.601	0.002	87
Use of the Internet Policies	22.907	0.0005*	96
Internet Connection	3.494	0.624	100
Intranet Site	5.674	0.339	98
E-commerce Site	5.549	0.353	101
Online Storage	6.371	0.272	101
Offline Storage	6.676	0.246	101
Nearline Storage	5.727	0.334	101
Offsite Storage	8.615	0.125	101
Working Copies and Backup Copies	4.728	0.450	93
Paper Working Documents	8.121	0.150	101
Electronic Working Documents	4.234	0.516	101
Film Working Documents	38.194	0.0000002*	101
Paper Backup Documents	4.496	0.480	101
Electronic Backup Documents	4.860	0.433	101
Film Backup Documents	25.542	0.000004*	101

Note. $df = 34$, $p < .001$, Fisher's two-tailed probability (significant)*.

Conclusions and Recommendations

Based on the findings of the study, the following conclusions were made:

1. Trends most often occurring in business and industry were outsourcing, reengineering, enterprise resource planning, and alliances/joint ventures.
2. The business systems most often used in business and industry were transaction processing systems and management information systems.
3. The relational database management system was more widely used than any other database system.
4. The majority of companies had established formal policies on disaster prevention, disaster recovery, access to electronic information, security of electronic information, ownership of email, and use of the Internet.
5. The use of data warehouses and the existence of a formal policy for the use of the Internet were dependent on the size of the company.
6. The size of the company also had an impact upon the use of film as a storage medium for both working documents and backup documents.

The following recommendations were made with regard to this research study:

1. Educators should update curricula based on the findings and make sure that students are knowledgeable about trends such as outsourcing, reengineering, enterprise resource planning, and alliances/joint ventures.
2. Educators should provide instruction on the basic systems and processes involved in transaction processing systems and management information systems as well as the use of relational database management systems.
3. Students should be encouraged to stay up to date with issues relating to policies on privacy and security of email and the Internet.
4. Educators should work with individuals in the business world and vice versa to provide opportunities for collaboration in order to provide a better quality workforce which can be done through job shadowing, internships, guest speakers, and advisory boards.
5. More research should be conducted to continue to identify trends, systems, policies, and procedures incorporated in information systems in business and industry to help educators remain current with changing technologies.

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PART II
INNOVATIVE INSTRUCTIONAL PRACTICES

Strategies for Integrating Assistive Technology for Students with Disabilities

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Abstract

This paper discusses instructional strategies for meeting the needs of mainstreamed business students with disabilities, integrating special technology and accompanying methodology into the curriculum, collaborating with special-needs personnel, and securing funding for assistive technology. A review of the laws impacting the increasing numbers of special-needs business education students is presented. In addition, resources for business educators to help students with disabilities to succeed are introduced, including special technology for students with visual, speech/hearing, motor, and cognitive impairments. Access to the Internet is discussed, including design of accessible Web pages.

Introduction

Since the mid-1970's, business educators have noticed that the number of physically and mentally challenged or disabled students has increased in their classrooms. In the past two years, however, the number of special-needs students enrolled in traditional vocational education programs has begun to increase and is expected to continue to increase, primarily due to changes in federal laws. Many business educators are not equipped with the training, experience, or resources to provide appropriate modifications to help these students maximize their learning potential.

Legislation

The two major laws affecting how schools treat students with disabilities were implemented more than 25 years ago. Section 504 of the Rehabilitation Act of 1973 contained a provision prohibiting discrimination against handicapped persons under any program or activity receiving federal funds. In 1975, Public Law 94-142, now called the Individuals with Disabilities Education Act (IDEA), required schools to provide disabled children with an IEP, or individualized plan of modifications and supplementary services as needed for success in the classroom.

In 1990, the IDEA was amended to add provisions mandating that a statement of "transition services" should be included in each student's IEP. The transition service needs requirement was intended to develop an outcome-oriented plan to reduce the drop-out rate for special-needs students and help them make a successful transition to adulthood into gainful employment or continue their education in an appropriate postsecondary program (Storms, O'Leary & Williams, 2000). In 1997, IDEA was again amended to strengthen the requirement for transition services. The '97 IDEA Amendments continued to emphasize that to the maximum extent appropriate, children with disabilities should be educated in regular classes with their nondisabled peers

with appropriate supplementary aids and services, modifications, accommodations, and supports. The final regulations were published in March, 1999. Transition services must now be provided to students with disabilities to prepare them for postsecondary education, employment, and independent living. Under the 1997 amendments, "transition service needs" must be identified in the IEP for all students with a disability who are age 14 and older and must be reviewed annually. The "transition service needs" must focus on the student's course of study such as participation in advanced-placement courses or a vocational education program. For each student beginning at age 16, the statement of needed transition services must include, if appropriate, a statement of interagency responsibilities or any needed linkages. In addition, each student's IEP must include a statement that the student has been informed of his or her rights that will transfer to the student on reaching the age of majority, consistent with Paragraph 300.517 (34 CFR 300.347).

In the mid 1980's, the Carl Perkins Act shifted Vocational Education funding emphasis to special-needs and at-risk students. The 1990 Perkins amendments and the 1997 IDEA amendments have continued this trend, and these laws will undoubtedly continue to increase the number of mainstreamed special-needs students that business teachers will find enrolled in their business education classes at both the middle-school and secondary levels.

In 1988, the federal Assistive Technology Related Assistance for Individuals with Disabilities Act was passed that provided funding for assistive technology (James & Meske, 1998). This legislation known as the Tech Act established an office in each state to provide centers and funding for assistive technology training projects for computer access, learning communication, and activities of daily living. These centers can send trainers to assist schools in setting up their own teams to provide assistive technology for disabled students.

Availability of Resources

The "special assistance in the form of appropriate supplementary aids and services, modifications, accommodations, and supports" as mandated in the IDEA legislation is needed to help many special-needs students to succeed in the regular classroom, depending on their particular disability. In the past, special education departments and vocational educators have not generally worked together as a team. Under the recent legislation, special educators will undoubtedly collaborate more closely with business educators, as vocational education programs will help them meet the IDEA transition requirements for special-needs students. Business educators will become more likely to be asked to participate in IEP meetings, which will enable them to receive necessary information to develop strategies for helping their disabled students and take advantage of additional resources that should be provided.

Vocational assessments may now be conducted, if appropriate, by Vocational Rehabilitation personnel. In the past, Vocational Rehabilitation agencies have not provided services to disabled students at the secondary education level on a widespread basis. Vocational Rehabilitation assessments and assistance may now be provided under transition services if the school requests it from the Vocational Rehabilitation agency or from the Assistive Technology Services agency. Services include information and referral, demonstrations/presentations, training, device selection assistance, technical support, short-term equipment loans, and purchase of assistive devices. Assistive technology includes products and devices for computer access, augmentative communication, and home/worksites modifications. Upon request from the special education department, an inclusion specialist will visit the school, provide assessments, and assist with various types of accommodations, including assistive technology.

Assistive Technology

Assistive technology is any piece of equipment or device that may be used by a person with a disability to perform specific tasks and improve functional capabilities (Southwest Human Development, 2000). Properly selected assistive technology products enable individuals with disabilities to become more independent and productive. Assistive technology can overcome many of the obstacles to student learning that discourage students from achieving their potential. The cost of assistive technology and other devices ranges from free to expensive, and the types of devices vary from low-tech to high-tech. In many cases, a disabled student can be assisted to accomplish a task using only low-cost devices, accommodations to the environment, and modifications to the workstation or task. Accommodations are minor changes, such as allowing more time, giving shorter assignments, moving a desk, or adjusting a chair. Modifications are major changes requiring documentation in the IEP.

Modifications include various types of assistive technology. Special assistive technology is available for individuals with various types of disabilities, including visual, speech/hearing, motor,

and cognitive impairments. This paper primarily addresses assistive technologies that help the disabled use a computer. Other information on environmental technologies may be obtained through many of the resources listed in the reference section. The most helpful sites include Closing the Gap (www.closingthegap.com), Indie: Integrated Network of Disability Information and Education (www.indie.ca), and Alliance for Technology Access (www.ataccess.org). (Technology: the new equalizer, 1998). Closing the Gap publishes the most comprehensive resource directory of hardware, software, and other computer-related products for children and adults with special needs.

Furniture Adaptations

For wheelchair access, the aisle in a classroom or computer lab should have a width sufficient to maneuver the wheelchair; recommended width is five feet. Ergonomic desks 30 inches in height with adjustable keyboard trays are recommended for students in wheelchairs. Some orthopedically impaired students can use minor adaptations such as placing the keyboard on their lap on top of a beanbag. Special Education may be able to provide an occupational therapist to evaluate the workstation for a disabled student and recommend appropriate adaptations.

Keyboard Adaptations

PCs have a special feature in the operating system called Active Accessibility, but it must be added it when Windows is installed. "Sticky Keys" and "Filter Keys" are utilities in Windows Active Accessibility for individuals with limited mobility or motor control in their hands. Sticky Keys allows individuals with limited motor control to avoid typing errors caused by involuntary hand movements or by pressing a key too long. Filter Keys allows individuals to type combination keys such as dollar signs and capital letters without using both hands. Macintosh computers come with the Easy Access program under the control panel that includes Sticky Keys and Slow Keys features. Slow Keys is the Macintosh equivalent of Filter Keys.

Plastic key guards are available from various vendors to place over a regular keyboard to reduce keyboarding errors for users with hand tremors. Miniature keyboards are available for users with limited range of motion. A wrist splint with a pointer on it allows users with pointing skills but limited range of motion to type. For students who are unable to type with both hands, the "Half-QWERTY" software by Matias Corporation or South-Western Publishing Company's classic book *Type with One Hand* (Richardson, 1998) are suggested. The Richardson book contains keyboarding lessons and drills in lefthanded and righthanded versions. A special alternative keyboard with only seven keys is available from Infogrip, Inc., for one-handed computer users who have good coordination but lack the range of motion to use a regular keyboard (Davey, 1999). This keyboard works somewhat like a court reporting keyboard; the user types certain letters by holding down combinations of other letters. Another alternative keyboard that looks like an Etch-a-Sketch

is IntelliKeys by IntelliTools. This device has various overlays to change or customize the keyboard. Don Johnston Incorporated makes a special keyboard called Discover:Ke:nx for users who can only type by sip and puff that allows them to type up to 20 words per minute by using only one switch (Closing the Gap, 2000). It can also be used to type using Morse code, which is actually very fast, with two switches to send keystrokes. For the most severely disabled individuals, a device made by LC Technologies allows the user to keyboard only with his or her eyes. The keyboard is shown on the screen, and an infrared device allows the user to type a letter by focusing his eyes on the letter for two or three seconds (Davey, 1999).

Word prediction software can be very effective for dyslexic individuals and users with mobility impairments. Word prediction software allows the user to operate a computer without having to type an entire word. As the user types the first letters of a word, the word prediction program compares it to a dictionary of words beginning with those letters. A window appears on screen with a list of words; the user finds the intended word and inserts the word in the document by typing only one keystroke.

Dragon Naturally Speaking is a popular voice recognition software that allows disabled users to operate the computer by voice commands (Closing the Gap, 2000). However, many disabled users are unable to use voice recognition software because they may have inconsistent speech patterns or diction.

Mouse Adaptations

Controlling the mouse presents a major problem to many students with physical disabilities, especially those with poor hand-eye coordination. Double clicking is difficult for many users, and click-and-drag is a major problem. You can speed up or slow down the mouse under the regular Control Panel settings. Under the Easy Access utility in the control panel of Macintosh computers, the "Mouse Keys" feature converts the number pad to a mouse controller, where the numbers move the mouse in different directions. The zero locks the mouse key down for click and drag, and the decimal point releases it.

Trackballs are simply a mouse with the ball on top. Several types of track balls are available from various vendors, ranging in size from as large as a tennis ball to as small as a pea (Davey, 1999). Some individuals with limited mobility in their hands are able to use a trackball above the screen on a bracket, and other individuals without use of their hands can operate a computer with a trackball and pedal on the floor with their foot. Duct tape is often used to place a trackball in a position that can be operated by the elbow or upper arm. Joysticks and touchscreens can also be adapted to work like a mouse.

HeadMaster and HeadMouse are infrared devices that allow the user to operate the computer with only head movements (Closing the Gap, 2000). HeadMaster is so precise that it allows users to do Autocad without using their hands (DiGangi, Wijesariya & Jones, 2000).

Monitor Adaptations

The computer monitor is inaccessible to blind users or those with low vision without magnification, text-to-speech, or text-to-Braille conversion. A regular computer monitor requires modification for deaf users so that audible error messages or "beeps" are converted to text that is read on the screen. For users with poor vision, Close View is a feature under the Macintosh Easy Access utility that enlarges the image on the screen. Keying "command option k" allows you to enlarge the screen view, and an icon of a magnifying glass allows the user to zoom in on small items (Davey, 1999). Some of these features were available in Windows 98, and more were added in Windows 2000. Windows 2000 has a screen magnifier, but earlier versions of Windows do not. ZoomText is a stand-alone screen magnifier that works with various versions of Windows (Closing the Gap, 2000).

A wide variety of high-tech hardware and software is available to allow blind users to read the screen (Software Focus, 2000). Refreshable Braille is a strip containing plastic pins that move up and down to allow the user to feel screen output in Braille. Documents can be printed in Braille by using special Braille software translators and embossers. Screen reading programs consist of special software and a speech synthesizer that reads aloud the information on the screen. The user can wear headphones to hear output from the speech synthesizer without disturbing others in the classroom. Windows 2000 has a screen reader, but it is unusable for blind individuals because the user must highlight the text for it to work. The most advanced screen reader today is called JAWS. JAWS reads text on the screen and tells the user where the cursor is located. JAWS can read not only text but also PowerPoint presentations and Web pages.

Internet Accessibility

Web pages should be designed so that they are accessible to disabled users (Crockett, 2000). Faculty in colleges and other institutions offering on-line courses or even on-line materials for student access (such as faculty Web pages) need to be aware that Section 508 of the Rehab Act mandates that Web pages must be accessible.

Poorly designed sites are difficult to navigate and may frustrate many users, including colorblind individuals. Some formats are readable by screen readers such as JAWS, but others are not. For example, Word documents and HTML formats are readable by JAWS, but Adobe PDF formats and Java scripts are presently inaccessible (DiGangi, Wijesariya & Jones, 2000). Web pages should be designed that have links to textual descriptions of graphics and multimedia objects. All images should be identified with descriptive ALT tags; for example, instead of "image," an image could be appropriately labeled "man opening car door." A good resource for web page guidelines for accessibility is provided by W3C, (www.w3.org). "Bobby" is a free service that will evaluate a website's accessibility (www.cast.org/bobby). "Prompt Toolkit" is another, more sophisticated website accessibility evaluation service (<http://aprompt.snow.utoronto.ca>).

Funding

Business teachers should be aware that the cost of special modifications ranges widely from free to several thousand dollars, although the cost of special technology is declining. Funding for specialized equipment, software, or aides can be obtained from a number of sources. A proportion of a school's Carl Perkins funding is supposed to be set-aside for special-needs students. Teachers seeking Carl Perkins funding should contact their school's vocational education director. IDEA funding is available through special education. Parents and teachers can make a written request for special equipment or other resources through IDEA. Some schools have a special transition specialist who can make recommendations. Some mild disabilities that do not fall under IDEA can receive assistance by making a Section 504 request that comes from regular school funds. Requests should be in writing, as the school has ten days to respond to a written request from a teacher or parent. Assistive Technology Resource Centers and Technology Access Programs in each state can also provide resources. In many states, Vocational Rehabilitation departments already provide services in schools, and these services will undoubtedly increase as more schools comply with the IDEA transition service provisions. The federal projects coordinator in your district may be able to provide funding from projects such as Title I funds for At Risk students, Dropout Prevention, Title IX, or Title VII to pay for adaptive equipment, an aide, or a work-study student.

Conclusion

Vocational educators and special educators should develop a better articulation of services for special-needs students who are being mainstreamed into business education classes. Business educators need to develop a more positive attitude towards special learners, accept them into the classroom, and be willing to make needed accommodations. All educators must be open to modifying the environment, equipment, and curriculum in order to meet their students' special needs.

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Teaching Voice Recognition Systems: Strategies for Success

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Abstract

When people talk (using the voice) in face-to-face or telephone communications, dialogue or non-verbal cues are used until the persons have the desired understanding. However, when using the voice as a means of input to the computer instead of the keyboard, users become frustrated if the results are not readily seen. Using the voice to input data to the computer instead of the hands (fingers) requires techniques that help the learner achieve a desired productivity level with minimum frustration. This paper discusses related literature then focuses on problems users encounter when using a voice recognition input system, corrective methods to be employed by the user when using the software and corrective measures the instructor can apply to help the user work effectively with the software, and suggested approaches/techniques to increase productivity and reduce frustration of users.

Introduction

Key words: Throughout this paper the following terms are used interchangeably--User and Speaker, Speech Recognition System and Voice Recognition System

Amy Wohl indicated at the 19th Annual International Organizational Systems Research Association (OSRA) Conference on February 25, 2000, that one change for the next 25 years is that "everything will become voice empowered." This can be seen by the many telephone activities that previously required a response by pushing a key (push 1 for this, 2 for this, 3 for something else, and so on), now indicates a "say or push" response as Delta Airlines reservation selections (say or push 1 for this, say or push 2 for this, say or push 3 for something else, and so on). Some systems are currently available for users to say 2-3 words for their selection or response (Roe, 1993).

Many television situations and movies present the use of computer generated voice technology in a seamless environment with people. The simulated virtual reality holographic deck on *Star Trek* and Hal of the movie *2001: A Space Odyssey* are two examples of this environment. In the sitcom *Doogie Howser* a teenage genius, who became a doctor, would type a journal entry into his computer at the end of each show about thoughts of situations from the show. As Doogie would think aloud or speak aloud his thoughts, the viewers could see the words appear across what seemed to be an Apple IIe computer screen. This gave the viewer an impression of what could be a seamless voice environment—by speaking or thinking the words, they could appear on a computer screen. Only by seeing Doogie's hands in some of the episodes did the viewer know that the words were actually being typed. If *Doogie Howser* were being filmed today, Doogie's thoughts for his computer-generated journal could actually be spoken and the words would appear on the computer screen.

Related Literature

Modes of Voice Recognition

While many of the simulated seamless voice technology environments viewed in movies or television programs have not been realized today, what Doogie did in *Doogie Howser* is now possible with voice recognition software for continuous speech. Terms associated with voice input or voice recognition systems are used to show how the computer circuitry processes the voice input of the user. The primary modes of voice recognition are speaker dependent versus speaker independent or discrete versus continuous.

Dependent or independent determines if the person has to train the software on the computer or source before it can be used by the speaker/user. Discrete or continuous relates to how the information is spoken by the user into the system.

If the system is dependent, it "depends" upon the speaker/user to train the system for it to understand the user's voice as an input device (Martin, 1987; Schroeder, 1993; Sensory, Inc., 1997-98). The user reads a short story, documents, or other textual information into the voice software program. This initial training time usually requires 15 - 30 minutes. Additional training may be needed depending on the level of accuracy desired or the environment in which the system will operate. Some voice systems operate in vertical business environments and may not require extended periods of training beyond the initial 15 minutes, unless additional training is needed on specific words, numbers, or phrases (Bland, 1995). The independent system does not require the user to train it before it can be used. The examples mentioned earlier of Delta Airlines and Roe (1993) would be independent systems. The independent voice system has been set up to accept a range of sounds to match with the input of the

speaker. Because a limited number of responses are available, this makes the selection or matching process easier for the computer.

A system that is discrete allows the user to dictate alphanumeric information or phrases, which normally operates in an independent environment. The number of responses available for the user for input is limited and is spoken with pauses between the words or phrases. The user can say "yes", "no", "1", "operator", "directory assistance", etc. Another way discrete is used in voice recognition is that the user must pause between each word before continuing to the next word for dictation (Martin, 1987; Schroeder, 1993; Sensory, Inc., 1997-98). For the purposes of this research, the limited number of responses available to the user is being referenced.

Continuous speech recognition systems closely assimilate regular conversation, but at a slower rate. It also operates in the independent mode. The user has to train a continuous voice system to recognize his/her voice before it can be used for input. Once trained, the voice software operates just as if the person were using a keyboard. As the user talks in a slow, but not discrete, conversational voice, the text appears on the computer screen. Most of the keys and mouse operations that were once controlled by hand can be controlled by voice (Martin, 1987; Schroeder, 1993; Sensory, Inc., 1997-98; Bland, 1995; Lazzaro, 1997).

Reasons to Train for Voice Recognition

Since voice recognition technology has reached a level to "accommodate a wide range of dialects, voice pitches, sore throats, and everything else" (Mello, 1993, p. 98) two reasons are discussed regarding why training should be conducted in voice recognition.

Voice recognition systems allow options to employers who have to consider Public Law 101-336, Americans with Disabilities Act—ADA (U.S. Department of Justice, 1990). Also, voice recognition systems allow employers to consider possible training for workers who may have limitations because of cumulative trauma disorders or repetitive stress injuries such as carpal tunnel syndrome, injuries from accidents, or illnesses that eliminate or reduce the use of the hands/fingers to operate the keyboard or manipulate the computer (U.S. Department of Justice, 1990; Latamore, 2000; Odgers & Keeling, 2000).

Business educators should train students for voice recognition because it is the latest trend affecting productivity in the business arena in general and specifically the administrative support professional. Latamore (2000) indicates that "it's only a matter of time before it [voice recognition software] becomes a standard office productivity tool" (p. 9). Technology developers constantly seek means to make input to the computer and manipulation of the computer easier and faster. Voice is the most recent technological advancement that has reached a level of perfection that makes it a viable system of input for educators to

teach. Voice recognition systems are not 100% accurate, but typists who key on a regular basis are not 100% accurate 100% of the time. In addition, most persons achieved the skill level of keyboarding over a period of time. Keyboarding [typing] skill was developed over some years with dedicated practice and attention to techniques; and the skill has been maintained through continuous use. Castelluccio (1997) states that, "Compared to how long it took to learn to type, the initiation [learning to use a voice recognition system productively] is very short" (p. 64). For the speech to become an instrument of productivity in voice recognition software, as the hands/fingers became such on the keyboard, approaches and/or techniques should be considered to help users become effective and efficient.

How Voice Recognition Systems Operate

Providing an understanding of how voice recognition systems operate and an overview of how voice is produced will build a foundation for approaches and techniques in teaching each user to apply his/her voice as an effective and a productive instrument when using a voice recognition system. Information presented will also reveal problems users may encounter when using a voice recognition system as a productivity tool.

The basics for an effective voice system begins with, of course, a computer with enough memory and speed to accommodate the software used, a sound card, a microphone (bi-directional, noise-canceling or USB for best quality), speakers, and the chosen voice recognition software. For optimal results with a voice recognition system, memory and speed should be increased to the next level if possible. If the voice recognition software indicates that 64 MB RAM and 200 MHz Intel Pentium Processor with MMX or equivalent, then for optimal results, the users would want 96-128MB RAM and 300 (or higher) MHz Intel Pentium II Processor with MMX. In Table I, Baum (1994) and Dragon Systems (1999) present two outlooks of how voice recognition systems work.

While a great deal of background noise is cancelled out with the bi-directional, noise canceling microphone, each person's voice has, according to Dr. Carl Harlan (professor of Speech Pathology and Audiology at Central Missouri State University), noise producing factors which make the sounds of words (phonemes) hard or impossible to match with the voice recognition system.

Each person has a unique voice pattern of how words are pronounced and articulated. Michulka (1988, 1999) and Chapey (1989) indicate that pronunciation is the accepted sound of a word and articulation is how well the sound produced by a speaker matches the accepted sound. This concept can be used to compare what goes on with a voice recognition system. The voice recognition system takes the accepted sound for words (acoustical data programmed in the voice recognition system's software) and combines it with the training entered by the user (acoustical data produced by user) to develop a user profile. The system looks for patterns of how each person pronounces and articulates words and creates a profile of how changes occur for

Table 1
How Voice Recognition Systems Work

Baum – 1994	Dragon Systems – 1999
“To use either . . . or speech recognition technologies, a computer system must first be equipped with sound capabilities. . . . —Speech generates sound pressure in the air. —Waves are picked up by a microphone, and converted from analog to digital form. —The signal is then compared with templates of prerecorded sounds stored in a database until a match is found. —The computer then displays its interpretation of the signal for user verification. Theoretically, speech recognition software can work with any processor that has enough speed and memory” (pp. 53-57).	“When you talk into the microphone, Dragon NaturallySpeaking doesn’t hear words or phrases. The computer hears your speech as a continuous stream of sounds. From this stream, Dragon NaturallySpeaking picks out common sound patterns, known as <i>phonemes</i>. To match these sound patterns to words, Dragon NaturallySpeaking relies on two large sources of data: <i>acoustical data</i> and <i>language data</i>. Dragon NaturallySpeaking uses acoustical data about the sound patterns to make up different words to choose the words that most closely match what it heard. . . . When you first trained the program, you provided acoustical data on top of what Dragon NaturallySpeaking already knows about the sounds of English. . . . When it’s not clear from sound alone what was said, Dragon NaturallySpeaking uses language data about the frequency with which words in English appear alone and in combination with others to determine which words were most likely spoken. Knowing that Dragon NaturallySpeaking uses acoustical data and language data to recognize your speech can help you know what to do to make the program work better” (pp. 7-8).

dialect, mispronunciation, and articulation errors for each user. The results become what the voice recognition system will use to determine words the user speaks during dictation. Depending on how closely the user pronounces and articulates to “standard English”, a level of accuracy or word matches is achieved.

Sounds are produced to create words by using the jaw, nasal cavity, pharynx, and primary articulation organs: lips, tongue, teeth, and jaw according to Michulka (1989). “The sounds of speech are created when these **articulators** change the shape of the oral cavity [the mouth] for vowel sounds and modify the breath stream being expelled for consonant sounds” (Michulka, 1988). According to Michulka (1988, 1999), a person may produce the sound “liberry” for “library”. She indicates that a person may think that “liberry” is the correct pronunciation. Therefore, the person used the articulation organs correctly to produce the sound, but the word would be mispronounced.

According to Michulka (1988, 1999), Castelluccio (1997), and Chapey (1989), persons mispronounce or inarticulate words because of habit (developed over a period of years), lack of hearing the correct pronunciation, carelessness, inattention, and dialect. Michulka (1988, 1999) and Chapey (1989) have also identified articulation and pronunciation errors that can be corrected with practice (Table 2). Another area to be considered is how users were taught to read and write, by the phonetic or whole language approach.

Table 2
Articulation and Pronunciation Errors

Listing by Michulka and Chapey
• Addition of vowel sounds • Omission of vowel sounds • Substitution of vowel sounds • Addition of consonant sounds • Omission of consonant sounds • Nasalizing nonnasal sounds • Reversing sounds • Slurring sounds • Substitution of consonant sounds • Confusing long sounds and short sounds

If voice recognition systems are to be used as the technology behind productivity tools of tomorrow, teachers and users of voice recognition technology have to learn more about

- how the systems operate,
- aspects of the voice for articulation and pronunciation, and
- what occurs when the user’s voice is integrated with a voice recognition system.

Problems Users Encounter With a Voice Recognition System and Corrective Methods

The comments most often written about the use of voice recognition systems show user frustration because the system doesn't readily understand the user's voice (Bland, 2000). The problems discussed that users encounter with a voice recognition system are in two categories: the voice and equipment. The problems are associated with microphone adjustments, articulation and pronunciation by users, user's rate of speaking (too fast or too slow), and the system's recognition of words (recognition errors).

The Microphone

The microphone is a key component, if not "the" key component, other than the user's voice in having a system that recognizes the words of the user. The microphone picks up the sounds of the user's voice. Some microphones have a right and wrong side. Therefore, becoming familiar with the microphone is the first step.

The user conducts an initial training session allowing the microphone and the voice recognition software to develop a "profile" of the user's voice. With each session, the microphone has to be adjusted and should be checked frequently in case it slips out of position from the initial audio check and positioning. The microphone should be about ½ inch (about a thumb's space) from the lower corner of the user's mouth. To help in adjusting the microphone, a mirror can be used or a spotter. A spotter would be a person who looks at the user and helps in the adjustment or positioning of the microphone.

If the user wears glasses and the screen is below or above direct vision, the user may lower or raise the head during microphone use. If the system was not used like this in the initial adjustment, then errors may occur during use. A spotter can be used to observe the user and evaluate how the microphone is being used during dictation (talking to the computer). Check to see if the microphone is too close or too far from the mouth or too close to the front of the mouth. If the microphone is too close to the front of the mouth, breathing errors will occur—extra words appearing within the dictated text. Even minute displacement of the microphone could cause similar-sounding word errors and other subtle errors in the recognition accuracy of the system. The microphone can be rechecked for an audio test at any point; and it is highly recommended if many small errors start occurring during dictation. Karl Barksdale (Speaking Solutions) reports that a USB microphone, while being more expensive, results in a higher accuracy rate than the microphone that comes with the system.

Articulation and Pronunciation, Rate of Speech, and Recognition Errors

How the voice is used to communicate on a day-to-day basis and by which we are understood, may cause inaccuracies when used

in a voice recognition system. This is especially true for users who exhibit the pronunciation and articulation errors indicated by Michulka (1988, 1999) and Chapey (1989).

As indicated by Baum (1994) and Dragon Systems (1999), voice recognition system software comes with a prerecorded or acoustical data program. The program is based upon "standard pronounced English". When a user conducts an initial training session to establish a voice profile before beginning dictation to the system, an acoustical data program of the user is created. The user's acoustical data program is matched with the voice recognition acoustical data program to build a user's profile. The voice recognition system is establishing a profile of how the user pronounces and articulates words and is trying to distinguish phonemes. The initial training is comprised of reading a short story or short document to the computer through the microphone, which takes about 15-25 minutes. Appropriate adjustment of the microphone is important in the initial training stage as it helps the system more closely distinguish the user's voice patterns.

After the initial training session, the system is ready to be used as a dictation and transcription unit (as the user speaks, the system records the words on the computer screen). The degree of accuracy is determined by how well the user speaks (pronounces and articulates words in phrases) and the microphone adjustment. If the user has problems in articulation and pronunciation, then the accuracy level is low. At this point the user has two options. Option one is to use permanent word correction through the correction dialogue box/screen as the system is learning the user's voice (as the system is used to create documents). This becomes a very tedious and time-consuming process, which often builds frustration in the user. The user often doesn't understand why the system is not recognizing his/her voice. Option two is less time consuming and not as frustrating if it is applied early in the process of using the voice recognition software for dictation. The user should read two or more stories to the system over several sessions. This approach works even better if the teacher conducts a session on pronunciation and articulation with the user.

Sloppy speech such as slurring or mumbling words very seldom, if ever, will work regardless of how much the user reads to the system. The users will have to be trained how to use the "articulators" in effective speech development to become successful and reduce frustration.

If the user speaks too slowly, the voice recognition system will take each syllable of a word and try to create it into a word. For example if a user were to say "Speak [pause] slow [pause] ly [pause] and [pause] clear [pause] ly [pause] when [pause] talk [pause] ing [pause] to [pause] a [pause] voice [pause] rec [pause] o [pause] ni [pause] tion [pause] sys [pause] tem [pause] period", the results may produce more words and different words than the users desired. Users will have to learn to speak in a natural, slow, but not halting, clear voice and in phrases.

If the user speaks too fast, the voice recognition system may not recognize the words correctly. The ending of some words may become blended with the beginning of the next word, which tends to create a word that was not dictated. If a user has good voice quality (speaks with good articulation and pronunciation and a strong pitch), the system often creates the correct words but may be slow putting them into the document. The processing power of the computer may be too slow to keep up with the rate of speech by the user. This can cause the computer to lock up/freeze and the user runs the risk of losing the information dictated. The corrective options would be for the user to slow down or to install the software on a more powerful machine.

Some recognition errors occur because the voice recognition system's language data is not the same as the user's. This can be handled by correcting the errors as they occur so the voice recognition software can become familiar with words used often by the speaker. The user can also "Run Vocabulary Builder" (name for Dragon NaturallySpeaking), which allows the user to add documents so the voice recognition software can become familiar with the writing style of the user (the frequency of words the speaker will use and the order in which the words appear).

Many opportunities exist for the user to become frustrated when using a voice recognition system for the first time. Attitude about change and attitude about flexibility will be deciding factors on how long the frustration lasts. Breathing hard, too little memory on the computer, microphone adjustments, language and dialect issues are but a few of the problems that can cause frustration. If learning a voice recognition system is approached as learning a new skill, most of the problems can be eliminated.

Approaches/Techniques for Voice Recognition Systems

Shorthand and typewriting were both approached as learning a skill. Even though persons could write, shorthand was a new frontier that involved curves, hooks, and other symbols that were joined according to rules. Speedwriting was later used and took on the look of handwriting, but with omitted letters here and change in a stroke there that also applied to rules (Crank, Anderson, & Peterson, 1982; Schrag & Poland, 1987; Douglas, Blanford, & Anderson, 1973). In learning typewriting, stress was placed on techniques in the beginning stages with moderate to little attention to speed and accuracy. It was emphasized that if students kept using the correct techniques, speed and accuracy would develop. In the evaluation process of typing, techniques were weighted high in the beginning (30-50%) and gradually moved from techniques being weighted high to low or no weight (0-10%) to basic competencies (10-30%), production and problem typing (30-80%) and work habits and attitudes (10%) receiving high weights (Robinson, Erickson, Crawford, Beaumont, & Ownby, 1979; Schrag & Poland, 1987; Douglas, Blanford, & Anderson, 1973).

Work habits and attitudes are key areas to be considered in learning to use a voice recognition system as a productivity tool. Since we talk and can make ourselves understood, it becomes frustrat-

ing when the words spoken do not readily and accurately appear on the screen. When persons learned to type (a psychomotor, perceptual-motor skill), frustration was common. The fingers often would not cooperate with the mind and move as swiftly as desired or as accurately as needed. Typing had to become a habit and executed without thought as the fingers moved swiftly from one key to the next. Hour upon hour of practice occurred as persons executed typing drills for speed, combination letters, alternate hand letters, accuracy, concentration, the space bar or other manipulative keys, and on and on it went until a skill was perfected (Robinson, Erickson, Crawford, Beaumont, & Ownby, 1979; Schrag & Poland, 1987; Douglas, Blanford, & Anderson, 1973; Harrow, 1972; Peters, 1997).

Guideposts (methods of teaching and evaluation criteria) were provided along the way when skills were being developed for typing and shorthand. However, with voice recognition as a productivity tool, the guideposts are being established as the technology is being forged into the work environment. When typing and shorthand were being established as tools for the trade, Lessenberry, Crawford, Peters, Leslie, Gregg, and others were probably establishing the guideposts and benchmarks that were used. But since we have no benchmarks, no methods or how-to books, we are becoming the pioneers of the latest productivity tool - voice recognition.

How do we approach it? Boldly!! Working with voice recognition technology is fun and it is challenging. As the technology advances and users become more proficient in its use, the two should meet each other for a super nova, taking us where no man has gone before, to borrow the *Star Trek* motto.

Consider the corrective methods already mentioned for development of approaches:

- Using Spotters - business educators have been observers in typing to make sure students used the correct techniques. This same procedure can be used for voice recognition in microphone adjustments and listening to how students pronounce and articulate words.
- Microphone Adjustment - a critical step and one each student needs to learn to correct individually. Use mirrors to have students learn to check themselves as they adjust their microphones. Teach students to notice the types of errors occurring in recognition to determine if it is a microphone type-error.
- Pronunciation and Articulation - dialects are different for different regions of the country as well as being different within the same regions of the country. Use a tape recorder to have students record a news commentator, key a transcript, produce a self-tape from the transcript, then listen and compare the self-tape to the articulation and pronunciation error list (Table 2) provided in the paper. Create teams and have students listen to each other and indicate corrections one to

the other in use of **articulators**. Teach and encourage students to practice listening to others speak, especially national news commentators. If needed, consult the state department of education for assistance on speech correction therapy in the state. The purpose is not to eliminate dialect, but become aware of correct speaking habits. As the technology advances, this factor may be eliminated. Encourage students to practice speaking clearly in normal conversation when the voice system is not in use.

- Using the Correction mode when needed for recognition errors to help in the training of the program.
- Use the voice recognition system often. Practice. Practice. Practice.
- Train the voice recognition system on specific words that are particular to the user and "Run Vocabulary Builder" or the appropriate aspect for the representative voice software.
- Locate and use a training book written for the particular software other than the users training manual. If one does not exist, modify an existing book with the appropriate commands for the software being used.

Voice recognition programs learn from the user as the program is operated to produce documents. If the user learns correct articulation to match the correct pronunciation of words as the system is used, then success with voice recognition is eminent.

Conclusion

Learning to use and learning to teach voice recognition software is exciting, rewarding, and (I repeat) challenging. Voice recognition software has implications far beyond the business classroom and the offices as a productivity tool, it has potential to provide in language what the calculator has provided for mathematics.

Some suggested areas for research in developing training for voice recognition are to:

- Establish benchmarks for voice recognition systems in document preparation
- Teach the use of articulators in speech development without negatively impacting dialectic characteristics
- Present updates of voice recognition software as used for document preparation and as it is used across and within industries

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PART III
WORK IN PROGRESS

Business Students' Perceptions of Electronically-Enhanced Learning: Opportunities or Challenges?

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Abstract

Electronic learning continues to grow into an integral part of many educational environments, especially distance education environments. While there are many potential advantages of electronic learning, special considerations do need to be made, including considering the potential drawbacks. Research has suggested that the media alone will not result in improvements in education; rather, the media needs to be considered along with the methodology used. However, it has also been suggested that today's students prefer the type of environments likely to utilize electronic learning.

This work in progress study will analyze students' perceptions of their electronic learning experiences. Business majors at AACSB member institutions will be asked to provide demographic data along with their perceptions of their experiences with on-line courses, electronic communication or technology assisted education.

Introduction

Society has been greatly impacted through the changes brought about by information technology. It has changed the way people communicate: e-mail messages are sent instead of letters; digital images are sent instead of pictures; teleconferences are used rather than meetings; courses are taught over the internet—the list is seemingly endless. Teachers and instructional designers are taking advantage of technology to make enhancements to learning environments. In some cases, the physical learning environment has been replaced with a virtual environment. Many of these enhancements have added a world of opportunity for educators. Students are afforded a far “richer” environment: They are able to actually see things that could previously only be discussed. They are able to communicate with their peers as well as other people around the world. They have instantaneous access to information which was previously unattainable. They are able to participate in interactive learning activities.

For decades, colleges gradually have been adopting a mode of education based on new technology, to free themselves from the limitations of their campuses. They use computers, video, and telecommunications, both to reach students off campus and to provide those on campus with more academic resources (Ehrmann, 1995, p. 1).

It is widely known that all of this—and more—is possible. The use of technology and electronic forms of learning and communicating is increasing across all forms of education. When discussing education of the future, the Internet is often viewed as a key component. Some predict that within a decade education will take place “wherever it is needed” rather than in traditional classrooms.

Those who doubt either the presence or the future of internet-based education, need only look to the state of Washington as one example of planning for the future of online education. Their Higher Education Coordinating Board requested legislative spending increases for online education as a way to avoid building new campuses or new buildings. Their master plan for higher education expects a projected 70,000 additional students through online courses. (Carnevale, 2000b).

Hazari and Schnorr (1999) report the use of Web-based materials for both supplementary and standalone instruction in educational settings. They cite the Web's ability to “engage learners in an interactive format” (p. 30) as one of the key advantages of using the Web in education. They also note that many educators are not taking advantage of the potential the Web offers for enhancing the teaching/learning process. They suggest that the Web environments can provide the ability to use a multitude of interactive components, which they believe seems to be directly related to constructivist theory.

Among the types of learning activities one can expect with technology are the ability for students to “download course materials onto their home or office computers and complete work independently, e-mailing their completed assignments back to teachers” (Okula, 1999, p. 8). They might also use electronic bulletin boards to post questions and comments for the class. Some classes have set meeting times when all students are on-line at the same time and other classes have flexibility for students to be on-line when it is convenient for them.

Objective

The objective of this proposed research project is to analyze students' perceptions of their participation in electronic learning

activities. The problem of this proposed research project is to determine which electronic learning activities students perceive to be beneficial. The need for this proposed research project is that it will assist educators and instructional designers to better understand how students perceive the use of electronic learning activities and environments. By analyzing student perceptions, educators and instructional designers can more appropriately design learning environments to meet students' needs.

Whether the use of technology has a direct impact on education, Owston (1997) does believe that today's students prefer to learn using the technology—they've grown up with the technology and most of them do not know the world without the computer. If students prefer to learn this way and they perceive the learning environment to be beneficial, it provides some rationale for using electronic learning activities. This study will explore the student perspective about three types of electronic learning. It is hoped that the results of this survey will be useful to educators and instructional designers when planning for the continued integration of electronic learning.

The following are questions which this project will address:

1. How much experience/exposure to electronic learning is typical of business students at AACSB member institutions?
2. Why do students select electronic courses?
3. Do students who have experienced electronic learning prefer electronic or "traditional" forms of instruction?
4. How satisfied are students with their electronic learning experiences? Do students perceive the electronic component to be beneficial?
5. How do students feel their own time commitment, material learned, and grades earned for electronic learning compares with their own time commitment, material learned, and grades earned for "traditional" learning?
6. Are demographic factors (exposure/experience, part- or full-time status, required or elective courses, age, classification, or grade point average) related to students' perceptions of the benefit of electronic learning?

For this project, the term "electronic learning" includes any aspects of the educational process which are enhanced or altered through the use of computers and computer technology. This includes, but is not limited to, Internet-based or on-line courses, discussion lists, chat rooms, computer-assisted instruction, tutorials, simulations, or modeling. The survey questions in this project will be limited to three categories of electronic learning: (1) on-line courses/education which includes courses delivered partially or completely via the world wide web; (2) electronic communication which includes using e-mail, chat rooms, threaded discussion groups, group communication software, or other electronic forms of communication as an integral part of

the communication and discussion for the class; and (3) technology assisted education (TAE), which includes using computerized materials or tutorials for any part of the instruction.

Related Literature

The literature base related to electronic learning is expanding exponentially. Authors readily debate the merits and drawbacks of using information technology to provide electronically enhanced learning environments. Presently, a majority of the literature provides anecdotal accounts of electronic learning. Authors are beginning to report their research findings related to the effectiveness of electronic learning environments along with teacher and student responses to electronic learning. Included here is a sampling of the potential for electronic learning, concerns and drawbacks related to electronic learning, and student responses to web based learning.

The Potential for Electronic Learning

Advocates of integrating information technology into education, cite numerous advantages of electronically enhanced learning. There are potential benefits for the educators, the students, and the educational institutions. One advantage of electronic learning is that it can lead to increased communication and participation in course discussions. Many of the factors which would limit the quality of face-to-face discussions—race, class, age, handicap, or lack of physical attractiveness—can be eliminated with electronic communication (Ehrmann, 1995). Additionally, the technology makes it easy for instructors to include guest speakers from literally anywhere in the world. They can be "brought" to the classroom through audio or video conferencing. Finally, "technology enables instructors to assemble a more diverse group of students—an advantage for many types of courses" (Ehrmann, 1995, p. 2).

A second, closely related potential advantage is that the ability for students to more carefully consider their responses allows for improved quality of conversations and discussions. "While some may decry the loss of face-to-face contact between instructor and student, it is not difficult to find faculty who believe the quality of interaction and learning that takes place on-line is actually superior" (Owston, 1997, p. 30). Students benefit from having more time to reflect on the discussion and to formulate their own ideas more coherently before posting them for others to read (Owston, 1997; Ehrmann, 1995). "Students off campus use such media as electronic mail, fax machines, voice mail, and computer conferencing to reach faculty members to discuss homework. Seminars, tutoring, and casual conversations also can be carried on among faculty members and students at a thoughtful pace using electronic means. The results can be astonishing" (Ehrmann, 1995, p. 2). Students who are shy or uncomfortable about participating in class discussions often no longer feel that way in on-line forums.

A third potential advantage of electronic learning is that it appeals to the way today's students prefer to learn—they've grown

up with it and most do not know the world without the computer. They are comfortable in this environment and, at times, prefer a computer with graphics and multimedia to a teacher with a blackboard or overheads.

A fourth potential advantage is that the Web provides flexibility for learning for regular, full-time students as well as those off-campus or distance students. Instructors are using the Web as a means for students to access study projects and on-line activities at their convenience. Students who, for various reasons, are unable to attend classes on-campus can take advantage of the flexibility of electronic learning. They are able to complete the requirements *where* it is convenient for them (typically home or work), as well as *when* it is convenient. Students meet the demands of their lives while fitting in the coursework on their own timetables.

A fifth potential advantage is that it enables new kinds of learning to occur. In a time when demands are being made for schools to help students develop their skills in critical thinking, problem solving, written communication, and the ability to work collaboratively, Owston (1997) believes the Web can be used to foster the development of these skills:

It would be absurd to state that the Web is the only tool that teachers and students should use, but there is a natural match between the Web and development of these skills. . . Teachers can encourage students to explore the Web with the goal of having them weigh evidence, judge the authenticity of data, compare different viewpoints on issues, analyze and synthesize diverse sources of information, and construct their own understanding of the topic or issue at hand. . . It is true that teachers have always had students do this kind of task with printed material. What the Web can offer that traditional media cannot is information that is instantly available, often very up-to-date, worldwide in scope, and presented in a more motivating format for students to explore (Owston, 1997, p. 31).

Another closely related potential advantage is that electronic learning, especially the Web, can provide authenticity to learning tasks. Students are able to interact with "real" people and to engage in "real" activities (Means & Olson, 1994; Owston, 1997). An example of this is providing an authentic audience for students to develop written communication skills. Writing for an "authentic audience" rather than writing for a teacher, is thought to be critical in developing writing ability. "The argument is that when students have a real audience to write to and have a purpose in writing to that audience, they will be more conscious of their vocabulary, syntax, and grammar" (Owston, 1997, p. 31).

A seventh potential advantage of electronic learning is that it allows for more flexibility to enable students to work collaboratively. Collaborative projects can be conducted where

students in different geographic locations are assigned to teams. Some of the possibilities for cooperation which the technology makes available simply were not previously available (Rickard, 1999).

A final potential advantage of electronic learning is the opportunity for decreased administrative costs. With students completing requirements off campus, institutions can realize savings in dollars that would have otherwise been allocated to things like overhead or faculty salaries. Without a great deal of additional cost, institutions find they can increase the "pool" of potential students by offering courses beyond the campus walls. It makes it easier for institutions to meet the needs and demands of more students. One professor's topic or presentation can be made available to students in a multitude of locations and times (Eddy & Burnett, 1997).

The advancements in technology have created or enhanced many opportunities for educational environments. However, *changing* the environment does not automatically equate with *increasing* the quality of the environment:

Technology doesn't guarantee quality, any more than does ivy on the walls of a campus-bound college. But enough evidence is available now to assure doubters that, given careful planning and adequate investment and supervision, you can indeed "call it teaching, if the faculty member and the student aren't in the same room" (Erhmann, 1995, p. 3).

Electronic Learning Considerations

Before jumping too enthusiastically into electronic learning, several areas must be considered. While the previously listed potential advantages illustrate the benefits, it is important to realize that the technology or the electronic aspects of the education alone are not enough to improve education. When Rickard (1999) corresponded with the five recipients of the 1998 Educom Medal for outstanding contributions made to improving undergraduate education through information technology, she found "the benefits . . . typically do not relate to educational quality in its purest sense (improved learning or increased academic productivity)" (p. 45). Instead she classifies the benefits as "more positive side effects" (Rickard, 1999, p. 45). The medal winners' peers have recognized them for measurably improving undergraduate education through their work with technology. However, the winners are skeptical about the long-term benefits.

"I think that IT has great potential to improve teaching and learning," says Velleman, "but only if and when the necessary investments are made to ensure that the technology actually enhances education rather than its simply being used to deliver the same old course or to substitute face-to-face teaching." (Rickard, 1999, p. 45).

Further, we are reminded that

after more than 50 years of research on instructional media, no consistent significant effects from any medium on learning have been demonstrated. Educational television is a case in point. Initially, hopes were high that television would have certain characteristics that would lead to improved student learning, but none have been found. Some argue that no effect can possibly be demonstrated, because any improvement in learning that may accrue will come from the instructional design, not the medium. . . (Owston, 1997, p. 30).

The web is often viewed as a tool for learning when it is simply the medium for delivering the content. What happens to the learning if the tool is taken away? The word processor is an example: "... as a result of using a word processor, do we develop certain beneficial writing skills that we would not likely develop? To date, no research has been able to consistently demonstrate this kind of effect with any computer based learning tool" (Owston, 1997, p. 30). As he states, his point in raising this issue is to illustrate that it is not productive to simply ask whether students learn better with the Web.

No medium, in and of itself, will likely improve learning in a significant way when it is used to deliver instruction. Nor is it realistic to expect the Web, when used as a tool, to develop in students any unique skills. The key to promoting improved learning with the Web appears to lie within how effectively the medium is exploited in the teaching-learning situation (Owston, 1997, p. 30).

Owston (1997) provides the example of an instructor who uses "threads" of conversation with on-line discussions in the course. "Unlike a live classroom where conversations disappear, the medium allows every thought to be captured for future examination, elaboration, and extension" (p. 30). The resulting deeper level of discussions is because of the "way the instructor stimulated and orchestrated the environment made possible by the medium" (p. 30) and not because of the medium. As long as we realize a need to change the education system through a different style of learning, Means and Olson (1994) are optimistic about the promise for technology in today's classrooms. Technology cannot be the singular force behind the learning; however, they've observed that technology amplifies what teachers are able to do and what they expect from students when technology is paired with education reform. As we move from "conventional didactic" instructional environments toward student-centered environments where reformers are asking for multidisciplinary projects, cooperative learning groups, flexible scheduling, and authentic assessment. In these settings, technology has the power to support teachers and students obtaining and using the information (Means & Olson, 1994). Finally, it is unrealistic to believe the technology will automatically make education easier:

What technology will not do is make the teacher's life simple. The kind of teaching and learning that we have described requires teachers with multiple skills. The subject matter is inherently challenging, and because it is evolving and open-ended, it can never be totally mastered" (Means & Olson, 1994, p. 18).

Before we invest our time and resources into using the web as an educational tool, Owston (1997) suggests we answer Davies' (1995, cited in Owston, 1997) three questions. Davies, Commissioner of Education in Virginia, is credited for the following questions which he believes must be responded to if technology is to address the "big problems of higher education" (p. 27).

Does it make learning more accessible?

Does it promote improved learning?

Does it accomplish the above while containing, if not reducing, the per unit costs of instruction? (p. 27)

Drawbacks of Electronic Learning

In addition to the concerns that need to be addressed relative to electronic learning, educators and institutions must also be aware of the potential disadvantages of electronic learning. One potential disadvantage arises from the technical nature of electronic learning. The amount of technical experience or training that may be necessary before being able to use the technology may require a great deal of time. Additionally, some instructors will resist the technology and will not be willing to work with it or to spend the time required to learn it.

A second potential disadvantage is the rapport between a professor and student(s) may be inhibited in electronic environments. The face-to-face experiences could be missing from the communication exchange. Because the communication is limited by the technology, often, the five senses are not all there to provide a holistic educational experience.

Closely related is a third potential disadvantage. Just as the relationship between the instructor and student(s) can suffer, so can the relationships between and among students. Students may not be able to develop the bonds that occur naturally in an on-campus situation. Communication exchanges may happen in the classroom, or they may happen through informal—even accidental—meetings of students and/or faculty. The important bonding among students "is especially likely to occur on campuses where study groups are common. . . . Indeed, the campus was created, in part, to help synchronize people's schedules so that such conversations could be more frequent and spontaneous" (Ehrmann, 1995, p. 2). Further, when students are members of virtual groups,

although discussion boards, chat rooms, listservs, and email certainly allow people to communicate, they are the electronic equivalent of passing paper notes to one

another. The "electronic curtain" that separates the participants constrains the dynamic that exists naturally when people are face-to-face. Developing group identity, cohesion, and rapport among students is very difficult under these circumstances (Neal, 1999, p. 43).

As a result of the loss of rapport with their instructor or the loss of bonding with their peers, students may experience a lack of personal emotion in their own education as well as a lack of motivation.

A fourth potential disadvantage is the lack of evidence of "learning" in student discussions. It can be too easy for students to "hide" behind the technology veil and to escape the confrontations they may face in a traditional classroom. As Neal (1999) notes:

It is difficult to find evidence that students are learning tolerance and acceptance of others, learning to entertain opposing views without reacting defensively, or learning to examine seriously the sources of their attitudes, beliefs, and values. If one visits a typical course-discussion board to read the student postings, one finds that students are not really having a discussion in the traditional sense of give-and-take; instead, they are simply making sequential position statements. . . . In short, it is too easy, in an electronic environment, for students to escape the confrontations, challenges, and learning opportunities that are present in the classroom" (Neal, 1999, p. 44).

A fifth potential disadvantage is the new barriers of access to education which the electronic environment can create. Among these are problems with computers and connection, including difficulty installing and using software, hardware malfunctions, slow response time due to heavy traffic, drops in telephone line connections, and problems with internet service providers. It is critical for institutions to have adequate technical support available for participants, "particularly in the early stages of the program when participants are most likely to encounter the greatest number of problems. At the same time they run the risk of disaster if their institution's computing infrastructure (e.g., number of incoming telephone lines, capacity of servers, and bandwidth of internal networks) is not adequate for the anticipated load" (Owston, 1997, p. 29).

A sixth potential disadvantage of electronic learning is the possibility of additional costs for students which, in some cases, may be prohibitive. If a student is required to use an internet service provider to access their campus, this adds a cost to the access of the education. Additional costs would be incurred by students who would be required to pay long-distance phone charges for making dial-up connections. Additionally, students living on or near campus have access to campus computers and resources usually at little or no additional costs beyond their tuition and fees, whereas, students who are utilizing electronic learning from a distance may need to purchase additional hard-

ware or software to be able to complete the coursework. When a student purchases the equipment and supplies for personal use, the per-person costs are much higher than the per-person costs which could be shared on campus. However, a counter point to this argument is that in many cases it is a choice students make and the costs they incur in equipment and supplies are offset by the costs they would incur from commuting, living on campus, or paying fees assessed to "regular" students.

One final concern is that online education is still relatively new and quality is a major concern (Carnevale, 2000a). He says it is still difficult to find out the reliability of many Internet-based courses. Until a solid research base has been established, we are left to rely on anecdotal accounts of the effectiveness of electronic learning. "Larson expresses concern that the so-called evidence that technology can actually help improve educational quality is really just the tendency of technology to make course material more engaging" (Rickard, 1999, p. 43).

Student Response

The final decisions about the usefulness of electronic education are yet to be determined. Institutions and educators are aware of the need to document the effectiveness as well as the importance of looking to students for their response to electronic learning. Terry's (2000) findings show that University of West Texas A&M (WT) MBA students had mixed feelings about their on-line program. "On the negative side, the majority of students feel the quality of Internet-based instruction is inferior to traditional campus instruction and over half of the students at WT feel that Internet courses lower the value of their MBA degree" (Terry, 2000, p. 44). The positive reviews, however, show "over 80 percent of the students in the survey identify at least one advantage of Internet-based instruction. Well over half of the students in the survey acknowledge that Internet courses make it easier to manage both school and work" (p. 43). They also found the discussion-based courses to be more satisfactory for students than the more quantitative courses like finance and statistics (Terry, 2000, p. 43).

When the University of Dallas Graduate School of Management teamed up with Pace University's School of Computer Science and Information Systems, a survey of their students revealed that although an Internet-based course took more time than a classroom course, 80 percent said they would do it again (Kroder, et. al., 1998).

Both of the cases cited are graduate-level programs. This research project proposes to more closely examine undergraduate student perceptions of their own electronic learning experiences, as is described in the Methodology section.

Methodology

In order to distribute the survey instrument, instructors of a senior-level, capstone course at AACSB Member Institutions will be contacted and asked to administer the survey to their

students. Those instructors willing to have their students participate in the study would then be mailed copies of the survey instrument and any necessary instructions, as well as the password and option of having students complete the survey on-line. Rather than a random sample of AACSB member institutions, all institutions within a geographic region would be initially contacted with the realization that some instructors simply will not be willing to participate or will not respond to the request. As there are currently well over 300 AACSB member institutions, it could prove difficult to initially contact all institutions. Once the survey has been administered to the willing participants in one region, a determination of the effectiveness of the instrument could be made. As a follow-up, institutions at one or more of the other regions could be surveyed. Ultimately, the study could be expanded to include several or all of the regions, which would then allow for regional comparisons to be made.

One consideration made in the selection of the educational institutions was whether the survey would yield more valuable results if the institutions selected were those known to have electronic learning components or degree programs. It was determined that since AACSB is a well-known accrediting agency, it would help to ensure that similar quality standards for education have been met and the individual students' degree program requirements would have some commonalities. Further, although some AACSB member institutions may not be offering complete electronic degree programs, they likely have courses that do utilize electronic learning. Thus, students who have had some exposure to electronic learning would not be eliminated from the study. It may be an opportunity to provide a view of the array of electronic learning options available to students. Having a variety of exposure levels would likely yield results which are more representative of the true mix of electronic and traditional learning. A final reason for selecting AACSB member institutions is that the author teaches at an AACSB accredited institution and the results would, therefore, be more likely to be generalized to their situation.

As an additional attempt to obtain a higher return rate, a copy of the survey will also be made available on-line. An electronic version may be preferred over a paper version, especially by those who are familiar with an electronic learning environment. To provide security and limited access to the survey, the survey's web address and the password for access to the survey will be made available to the AACSB instructors to provide their students.

The questionnaire will contain 27 questions. Students will be asked to provide demographic information such as age, gender, classification, full- or part-time status, and grade point average. The remaining questions will ask for student responses about their electronic experience. Many of the questions will be answered according to which of the three types of electronic learning is applicable. Students who have experienced multiple types of electronic learning will be asked to respond to the questions separately for each type of electronic learning. A copy of the survey questions is included in Attachment 1.

A response rate of 30 percent will be considered acceptable for this type of survey/questionnaire. If the desired response rate is not obtained, a follow-up letter will be sent to the faculty members, encouraging their support of the study and encouragement of their students' responses. Depending on the response rate at that time, a personal contact may be also made with the faculty members (via telephone), if deemed necessary.

Data Analysis

Once the surveys are returned, the data gathered would be analyzed using SPSS statistical software. The demographic data will be analyzed using descriptive statistics. Inferential statistics to be conducted using the questionnaire would be analyzed using bivariate and multivariate crosstabulations.

Expected Outcomes

It is anticipated that the results of this proposed research project will provide teachers, educational administrators, and instructional designers with insight into undergraduate students' perceptions of their own electronic learning experiences. There are many advantages, concerns, and disadvantages to using technology in educational environments. Whether the technology directly impacts the learning environment is currently being debated. Many will agree that the medium is not as important as the methods with which the media are employed. However, changes in educational approaches can effect perceptions and attitudes of all involved. This study will look at how students react to their electronic learning experiences.

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Attachment 1: Potential Survey Questions

1. Gender
☐ Male
☐ Female
2. Present GPA: _____
 Please indicate scale, A= _____
 (i.e. A=4.0)
3. a. Number of Credits you are currently enrolled in: _____
 b. ☐ Semester OR ☐ Quarter
 c. Not all of the courses were taught only with the electronic component
4. Age
☐ 17 or younger
☐ 18-23
☐ 24-29
☐ 30-35
☐ 36-41
☐ 42 or older
5. Present Classification
☐ Freshman
☐ Sophomore
☐ Junior
☐ Senior
☐ Graduate
☐ Other (Please Specify) _____

For Questions 6-19, please provide separate responses to each question for each of the three forms of electronic learning as applicable. It is possible for you to have three different responses to each question.

6. How many courses/credits have you completed with an electronic learning component?
 a. courses (indicate number for each type)
 b. total credits (indicate total for each type)
7. When you completed courses with an electronic learning component, were you a full-time or part time student?
 (Enter the letter of your response for each of three types of electronic learning)
 a. full-time for all courses
 b. full time for most (over half) courses
 c. full-time during some courses and part-time during some (about equal)
 d. part time for most (over half) courses
 e. part-time for all courses
8. Of the courses you have completed with an electronic learning component, were the courses required for your major or program of study?
 a. Yes all the courses were
 b. Yes and No—some of the courses were
 c. No none of the courses were
9. Of the courses you have completed with an electronic learning component, did you have an option of taking the course without the electronic learning component (traditional instruction)?
 a. Yes all the courses were optional
 b. Yes and no—some of the courses were offered both ways
 c. No all of the courses were taught only with the electronic component
10. Of the courses you have completed with an electronic learning component, how many students would you estimate were enrolled in the courses?
 a. less than 10
 b. 10 to 25
 c. 26 to 50
 d. 51 to 75
 e. 76 to 100
 f. over 100
 g. I'm uncertain

	On-line	Electronic Communication	Technology Assisted Education
6a			
6b			
7			
8			
9			
10			

11. What portion of the course instruction was delivered using this mode of electronic learning?
 - a. 25% or less
 - b. 26 to 50 %
 - c. 51 to 75%
 - d. 76 to 99%
 - e. 100%
12. What portion of the time you personally dedicated to the class was spent working with this mode of electronic learning?
 - a. 25% or less
 - b. 25 to 50%
 - c. 51 to 75%
 - d. 76 to 99%
 - e. 100%
13. How do you feel the electronic learning affected your individual learning in the class?
 - a. Positive effect
 - b. No effect/neutral
 - c. Negative effect
14. How do you feel the electronic learning affected your overall participation in the class?
 - a. Positive effect (more participation than typical)
 - b. No effect/neutral(about the same participation as any other class)
 - c. Negative effect (less participation than typical)
15. Overall, do you think courses with electronic learning are easier or harder than traditional courses?
 - a. Easier
 - b. Harder
 - c. About the same
16. How would you characterize your grade in the class where you utilized electronic learning?
 - a. Higher than my GPA
 - b. About the same as my GPA
 - c. Lower than my GPA
17. IF your grade was higher or lower, do you believe it was because of the electronic learning? (Skip this question if it was about the same)
 - a. Yes
 - b. No
 - c. Partly
18. IF your grade was higher or lower, do you believe it was because of the instructor? (Skip this question if it was about the same)
 - a. Yes
 - b. No
 - c. Partly
19. How important do you feel the electronic learning component was for the courses you took?
 - a. Very critical part of the course
 - b. Didn't/Wouldn't make a difference

	On-line	Electronic Communication	Technology Assisted Education
11			
12			
13			
14			
15			
16			
17			
18			
19			

20. Overall, how satisfied are you with your electronic learning experience?

- | | |
|---|--|
| ☐ Very Satisfied | ☐ Somewhat dissatisfied |
| ☐ Somewhat Satisfied | ☐ Very dissatisfied. |
| ☐ Neutral | |

21. How likely would you be to enroll in another course with an electronic learning component (assuming it was optional)?

- | | |
|---|--|
| ☐ Very Likely | ☐ Somewhat Unlikely |
| ☐ Somewhat Likely | ☐ Very Unlikely |
| ☐ Neutral or Uncertain | |

22. How likely would you be to enroll in a course with an electronic learning component different from those you've previously experienced?

- | | |
|---|--|
| ☐ Very Likely | ☐ Somewhat Unlikely |
| ☐ Somewhat Likely | ☐ Very Unlikely |
| ☐ Neutral or Uncertain | |

23. How likely would you be to recommend a course with an electronic learning component to a friend or relative?

- | | |
|---|--|
| ☐ Very Likely | ☐ Somewhat Unlikely |
| ☐ Somewhat Likely | ☐ Very Unlikely |
| ☐ Neutral or Uncertain | |

24. Which of the following would you say is the primary advantage of courses with electronic learning components? (Please check only one response)

- ☐ Comfort Level
- ☐ Convenience
- ☐ Distance
- ☐ Flexibility
- ☐ Pace
- ☐ Other _____

Please Explain Your Choice: _____

25. Which of the following would you say is the primary disadvantage of courses with electronic learning components.

- ☐ Isolation
- ☐ Responsibility
- ☐ Lack of Assistance
- ☐ Technology Problems
- ☐ Unclear Directions
- ☐ Other _____

Please Explain Your Choice: _____

26. If this was your first experience with these forms of electronic education, describe your first impression of electronic learning. Otherwise, skip this question.

27. If you have had multiple experiences with electronic education, describe how your impressions of electronic learning have changed over time (or have they remained the same?) Otherwise, skip this question.

Evaluating the Ethical Attitudes of Business Seniors at a Large Midwestern University (A Pilot Study)

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Abstract

The purpose of this work-in-progress study is to evaluate business seniors' abilities to recognize and distinguish between ethical and unethical practices related to education and business, and to determine if such ability indicates that a student will consistently choose the ethical decision. In addition, the students' ethical attitudes will be compared to what their faculty believes are appropriate.

Introduction

Business education literature of the last decade has included frequent, even urgent, calls for the inclusion of ethics instruction in the business education classroom. Trevino and Youngblood (1990) have noted that people are not inherently ethical or unethical, but tend to be influenced by the culture that surrounds them. And Murphy and Boatright (1994) found that a course in business ethics can have a positive effect on students' abilities to identify the presence of ethical issues. But does the ability to recognize ethical issues and distinguish between ethical and unethical practices indicate that students will consistently choose the ethical decision?

Statement of the Problem

Although the need to teach ethics seems obvious, and evidence has been presented that ethics instruction can make students more sensitive to the presence of ethical issues (the cognitive domain), it remains to be determined whether or not instruction in ethics is effective in molding students' attitudes, beliefs, values, and behaviors (the affective domain). Little empirical research has been done to evaluate the efforts of teaching ethics in the college business classroom.

Purpose of the Study

The purposes of this study are

1. to identify the ethical attitudes of the current class of business seniors at Ball State University,
2. to compare those students' ethical attitudes to the attitudes that the business faculty feel are important and that they believe their business courses reinforce,
3. to determine if those students can identify ethical and unethical practices in education and business and make the

"appropriate" decision, as determined by the business faculty,

4. to determine if the students' abilities to identify ethical and unethical practices indicate that the students will always choose the ethical decision.

Methodology

An initial instrument comprised of several scenarios that present ethical and unethical practices, or present an ethical dilemma will be compiled from business faculty input. Students will be asked to respond to each scenario by indicating how they would resolve the incident or dilemma. Students will be asked only to react to the scenarios. They will not be asked to identify the ethical issues or determine the appropriate responses. The students' responses, which identify their ethical attitudes, will then be compared to the responses that the faculty indicate are appropriate.

A second instrument will be prepared that will deal with the same ethical issues as the first instrument, but will place those ethical issues within different scenarios than the first instrument. This second instrument will be administered to the same students as the first and the students will be asked to identify ethical and unethical practices and indicate what they feel is the "appropriate" response.

The research questions that will guide the evaluation are:

1. How do the ethical attitudes of the current class of business seniors at Ball State University compare to the attitudes that the business faculty reinforces through courses?
2. Can the current class of business seniors at Ball State University distinguish between ethical and unethical practices and select the "appropriate" decision as determined by the business faculty?



PART IIV
RESEARCH TRAINING

Grant Writing: A Tool for Researchers and Educators

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Abstract

In the face of flat or declining funding levels, today's educators are faced with a growing list of responsibilities and challenges that include additional duties mandated by society, rapid technological change, competitiveness in the international community, and the underlying need to provide enhanced educational experiences for all students. Grants can help to fill the gap between goals and means. Therefore, the ability to write and obtain grants is an essential skill for researchers and educators. This presentation will address the need for seeking grants, sources and uses of grant funds, attributes of successful grantsmanship, how to identify funding needs, how to identify funding sources, techniques on writing grant proposals, and resources/references on grant funding and grant writing.

Introduction

When needs exceed resources, many educators are turning to grants as a resource to meet the growing list of challenges and responsibilities they encounter when they attempt to enhance the educational experience for all students. There are literally billions of dollars available to educators in the form of grants from public and private sources. The federal government is the world's largest single grantor, providing billions of dollars annually to education. In the private sector, corporations and foundations also provide billions at both the national and local level. Billions of dollars for education are also available from sources such as community service organizations, state government, professional organizations, special purpose groups, local business and industry, trust funds, vendors/manufacturers, alumni, advisory committees, and individuals. Can an educator afford to ignore these funding sources? No!

The amount of funding sought for educational purposes can range from a few hundred dollars to thousands of dollars. Funding is typically sought for the following kinds of activities: in-service training, continuing education, curriculum development, developing model/experimental programs, implementation of established programs, equipment and materials, technology, construction, pilot projects, needs assessments/planning, and pure/applied research.

Obtaining grant funding is not difficult. Many educators are successful grants person because they have succeeded in obtaining the necessary skills. This paper will address the strategies and techniques that can assist an individual in developing or refining grant writing skills by discussing the attributes of successful grantsmanship, identifying funding needs, identifying funding sources, matching need with funding sources, suggestions on preparing a written proposal, and sources of additional information.

The Art of Grantsmanship

There are some fundamental steps that can enhance one's ability to succeed in obtaining grant funding. The first step involves learning about grantsmanship by reading and studying various types of publications available on how and where to obtain funds, by attending workshops/seminars/courses on grantsmanship, and by asking questions or seeking advice from colleagues or successful grant writers. The second first step involves identifying and assuming those attributes that make a person successful grant writer.

Learning about Grantsmanship

For those who are new to grantwriting or those who want to refine their grant seeking skills, there is an abundance of information on the art of grantsmanship. Although there are no magic formulas for obtaining grants, one can gain and/or develop one's own grant seeking strategies by studying "how-to" books, self-help guides, and manuals. Public and university libraries provide several different types of publications that can assist the grant seeker in obtaining funds: newsletters, articles, ERIC documents, government grant publications, and directories of funding agencies. Ask the librarian for help in locating these documents.

The Internet is an excellent source for information on how to secure funds as well as identifying grant resources. An example of a web publication is the U.S. Department of Education's booklet, "What Should I Know About ED Grants?" This booklet provides a nontechnical summary of the Department of Education's discretionary grant process and the laws and regulations that govern it. In a "how-to" fashion, the booklet guides the grant seeker through the application process. Tips, sample forms, and a comprehensive glossary are also provided. The full text is available at the Department's web site at <http://www.ed.gov/pubs/KnowAbtGrants/>.

An excellent source for learning about the art of grantsmanship can be found in one's own department, school/college, or school district. One's own colleagues who have been successful grant writers can provide a wealth of information as well as serve as source of inspiration. Those who are responsible for assisting staff members in obtaining grants, such as personnel from the college grant office, local/district administrators and state supervisors can provide valuable guidance in assisting educators in obtaining grants.

Training sessions, workshops, or courses on grantsmanship can offer help to the new proposal writer as well as offer tips to the experienced grant seeker. These grantsmanship training sessions are often offered by professional organizations, universities, and school districts.

Attributes of Successful Grantsmanship

What are the knowledges, skills, and attitudes (KSA) needed to be a successful grant person? The first one is to obtain the right attitude: a positive and disciplined mental attitude. The right attitude will get you through the highs and lows of grant writing. Time management skills are essential. Allocating time for seeking grants is crucial. Other management type skills include being organized, being disciplined, being able to meet deadlines, doing the necessary legwork or homework, and perhaps, the most important skill is persistence. Attributes of successful grantsmanship also include the following: being creative, flexible, thinking long term, being assertive, exercising high-quality writing skills, bring together a diverse team, and seeking advice from experts. Finally, do not be afraid to learn from your mistakes.

Identifying Funding Needs

Grant funds are sought for a variety of reasons, for example, for restructuring, reforming, reinventing, or retooling curriculum and instruction. In education, funds may be needed for in-service training, continuing education, curriculum development, developing model/experimental programs, implementation of established programs, equipment and materials, technology, construction, pilot projects, establishing networks, needs assessment/planning, pure/applied research. The need for grants can stem from previously funded research.

Determine the Need

Grant proposals that identify a real need or problem and match the objectives of the funding agencies have a better chance of getting funded. One must ask if this is a real need or a whim. A considerable amount of thought and investigation must be given to determine the real need and the degree of impact that a grant can provide in meeting this need. For example, "Our computer lab needs Internet connections for web-based instruction," or "Our business education curriculum needs to have an international dimension to heighten students' awareness of the fact that

they live in a global community." Each of these needs is expressed in concise and concrete terms. The first statement expresses a need for equipment that will enhance instruction as well as prepare students to be self-directed learners. The second specifies an academic deficiency in the curriculum. A point should be made that grants should be sought to address a real need and not be sought merely for the sake of getting funds.

Research the Feasibility of Seeking Funds

If a real need or problem has been identified, the next step involves determining the feasibility of seeking funds. The grant seeker must establish the justification for the grant by researching the topic/literature to provide evidence of need and the short-term and long-term impact of addressing this need. The degree or level of justification will depend on the type of problem. For example, obtaining Internet equipment will not require as lengthy a proposal as will the international literacy curriculum issue cited above.

Once a need has been identified, the grant seeker should develop a strategy to address the problem. Advice from fellow workers, supervisors, and an advisory committee can help to conceptualize or formulate the strategy. Brainstorming can be used to develop a list of creative ideas for solving the problem as well as identifying those aspects of the project that are real needs and those that are whims. (Bauer, 1988; Liedtke, 1988).

After the need has been established and a strategy developed for addressing the need, the grant seeker should provide evidence of his or her suitability to meet the goals of the proposed grant. The kind and amount of support that will be provided by one's own institution will have to be identified. This support may be in terms of release time from teaching, matching funds, in-kind matching, and/or support to be continued after funding has ceased. To be competitive, grant seekers must demonstrate their uniqueness in solving the problem or meeting the need.

Identifying and Selecting Funding Sources

Selecting the appropriate funding source can be a time-consuming process, but the payoffs can be worth it. The type of proposal will determine what funding source is the most appropriate. The following are some considerations on locating appropriate sources of funding.

Types of Grant Providers

The three main sources of grant funding are government agencies, foundations, and corporations. Public funding agencies can be found at the federal, state, and local levels of government. Even though the federal government administers hundreds of grant proposals each year, many grant seekers fail to apply because they perceive the process to be too overwhelmingly complex (Ramsey & Hale, 1994). Public funds are available in several formats:

1. *Block Grants* - are allocated on a formula basis, and are for a group of related programs with funds sent to state or local governments for distribution based on identified priorities.
 2. *Categorical Grants* and *Project Grants* - are designed to fund proposals for special programs.
 3. *Contracts* - are used when a governmental agency solicits a proposal through RFPs (Request for Proposals) for some predetermined activities.
 4. *Formula Grants* - are allocated according to a predetermined set of criteria for area-specific programs and may go through an intermediary, such as a state or local government agency.
- (Bauer, 1988; Stull, 1989)

The largest groups of private funding are from foundations and corporations. The 25,000 plus existing foundations can be grouped into national, state, community, and family foundations. The approximately 800,000 grant funding corporations can be either national and community based (Bauer, 1988). The paper work involved in seeking private funds is usually less than when applying for governmental funds. Other providers of private grants are manufacturers/vendors, advisory committees, civic organizations, trust funds, alumni, individuals, and professional organizations, such as the Delta Pi Epsilon Research Foundation Grants Programs. In fact, one's own community can be a fantastic source of funding. Local communities offer a wide assortment of funding sources that usually have few restrictions on the use of the funds and they can be combined with other funds. Lions, Kiwanis, and Rotary Clubs and other community service organizations provide grants in the \$1,000 to \$2,000 range to help the disadvantaged or to support school improvement. Professional medical groups and law firms provide small grants through trust funds or wills. Local businesses and industries offer support by donating cash or products. (Miller, 1989; Plesich, 1989)

Information about Funding Agencies

There are numerous sources of information in both print and electronic format that can be used to identify potential funding sources. Some sources can be found in one's institution. Other source of information is available from state and federal agencies, in libraries, from professional or business/industry associations, and from computer/Internet searches. Valuable contacts are grant persons or administrators within one's own institution (school system or college), colleagues who have successfully obtained funding, state supervisors, and local district administrators. The library provides a wealth of information ranging from government documents, directories, publications to "how to do" books and guides.

Some useful sources for public funding are the Catalog of Federal Domestic Assistance, which is designed to assist users in identifying programs that meet specific objectives; the Annual

Register of Grant Support, a directory of fellowship and grant support programs of government agencies, foundations, business, professional, and other organization; *Federal Grants and Contracts Weekly*, a weekly listing of selected grant and contract programs, covering training, research, and technical service opportunities; *The Federal Register*, *Federal Assistance Monitor*, *The Chronicle of Higher Education*, (Braukmann & Pedras, 1989; Gelatt, 1989; Redmann, 1993). As mentioned earlier, an excellent source for information about grants from the U.S. Department of Education is "What Should I Know About ED Grants," which can be found at the following web site: www.ed.gov/pubs/KnowAbtGrants.

There are a variety of sources that provide helpful information on private funding. One of the most useful sources is the Foundation Center, a national clearinghouse for information on foundation and corporate giving, which provides information to grant seekers, grantmakers, researchers, policymakers, the media, and the general public. This nonprofit service organization was established by foundations in 1956. The Center's mission is to foster public understanding of the foundation field by collecting, organizing, analyzing, and disseminating information on foundations, corporate giving, and related subjects. The Center's web site, www.fdncenter.org, entitled: "The Foundation Center: Your gateway to Philanthropy on the World Wide Web," provides access to the following resources: The Foundation Center's *Grants' maker Information* directory, *Philanthropy News Digest*, *funds net*, and *The Internet Prospector*. Directories of foundations provided by the Center include: *The Foundation Directory*, *Foundation Finder*, *National Directory of Corporate Giving*, and specialized directories, such as the *National Guide to Funding for Information Technology* and the *National Guide for Funding in Higher Education*. Examples of funds available on the Center RFP Bulletin web site include: various award programs that are available from the Association of Career and Technical Education; the National Foundation for the Improvement of Education provides \$1,000 grants for professional development; the Employment Management Association awards \$3,000 grants for school-to-work transition partnership; the Spencer Dissertation Fellowship for Research Award Programs gives \$20,000 each to approximately 30 fellows; and the Entrepreneurship Awareness and Education Grant Program provides \$25,000 grants.

For information on corporate funding, consult the Taft Group at their web site (www.taftgroup.com) for reference works on the philanthropic activities of wealthy individuals, corporations, and foundations. The *Taft Corporate Giving Directory* provides a guide to more than 500 corporate foundations or direct giving programs. Other Taft Group publications include *The Foundation Reporter*, the *Corporate Giving Watch* newsletter, the *Foundation Giving Watch* newsletter, and CD-ROMs such as *Prospectors' Choice* and *Grants on Disc*. Another source is the *Directory of Education Grants* by Richard M. Eckstein (1996) contains profiles of 650 foundations that award educational grants to nonprofit organizations.

Many private funders provide their own home pages on the World Wide Web (Schnitzer, 1996). The following is a partial updated list developed by Denise Schnitzer (1996):

American Express Philanthropy,
<http://home3.americanexpress.com/corp/philanthropy>

AT&T Foundation, <http://www.att.com/foundation>

BellSouth Foundation, www.bellsouthcorp.com/bsf

Carnegie Corporation of New York, www.carnegie.org

Metropolitan Life Corporate Giving Program,
www.metlife.com

Rockefeller Brothers Funds, www.rbf.org

Rockefeller Foundation, www.rockfound.org

Grant seekers looking for funding their technology needs, may want to consult the following Internet sites identified by Sliger and McLeod (1997):

Distance Learning Funding Sourcebook,
www.technogrants.com

U.S. Department of Education, www.ed.gov/Technology

National Science Foundation, www.nsf.gov

AT&T Learning Network, www.att.com/learning_network/home.html

CISCO Educational Archives, www.cisco.com/edu

Council of Foundations, www.cof.org

George Lucas Educational Foundation, www.glef.org

RESEARCHNET, www.researcher.asu.edu/funding/rsubscribe.html

KidSource, www.kidsource.com/kidsource/pages/Donation.html

Selecting the Appropriate Funding Source/Agency

Grants can be obtained for a variety of purposes with varying degrees of financial support ranging from a few hundred dollars to dollars in the five- and six-digit range. Project grant money can be used for workshops, in-service teacher training, development of curriculum guides, pilot projects, etc. Equipment and materials grants are available for funding technology needs. Travel grants can be used to support professional activities such as attending or presenting papers at a conference. Fellowship

funds are used to support further professional study. Research grants support pure and applied research efforts which are usually at the postsecondary level. (Braukmann & Pedras, 1989)

The purpose and the amount of funding needed will determine the funding source. For grants needing small amounts of funds, the grant seeker would do well to solicit support from local sources. For grants requiring a higher degree of support, state or national level funding sources may be more appropriate. For example, if a single piece of equipment or a small donation is needed, local sources such as equipment vendors may be appropriate. If attempting to equip a complete technology lab, it might be better to contact larger funding agencies such as corporate foundations or equipment manufacturers. Since local sources can offer a wide assortment of funding sources, the grant seeker may want to consider combining funds from different sources. For long-term grants, such as curriculum development efforts, applied/pure research, or needs assessment studies, federal/state or large foundations may be appropriate.

Once a funding need has been formulated, the next step involves identifying potential funding sources and narrowing down the list. To determine if the identified need matches the mission of the funding agency, examination of the funding criteria and guidelines should be conducted. Application kits or funding guides can be obtained from web sites, by writing letters of inquiry, by making telephone calls, or by making personal visits. Most funding agencies will provide copies of their philanthropic mission, eligibility, evaluation criteria, and a list of funded programs/projects which can include a brief description of the activities and the amount awarded. By reviewing what grants have been supported by a potential agency or sponsor one may gain insight into the types of grants awarded, the amount of funds provided, and the types of recipient awarded funds. Personal contacts should not be overlooked because one-on-one interaction provides the opportunity for each party to become better familiar with the other's needs. This increases the likelihood of a proposal being funded, and will minimize lost time and effort on the part of both parties. Therefore, grant seekers should not hesitate to contact the funding agency about eligibility as well as application process.

Matching the proposal with the mission and the interest of the granting agency is essential for successful grantsmanship. Use a systematic approach to organizing and gather as much information as possible about the funding agency and your proposed project to insure a greater rate of success. Preplanning activities should include preparing a pre-proposal summary of your idea, reading the application requirements carefully, talking to funding agencies, setting priorities, and selecting proposal writer(s). According the Foundation Center (2000), considerably more time should be spent developing the program or project and researching and cultivating appropriate funding sponsors than on the actual preparation of a proposal. Good proposals are based on sound program planning (Foundation Center, 2000).

Writing the Grant Proposal

Factors to Consider

There are no magic formulas for writing grant proposals; however, there are some general considerations that can help grant seekers develop a sound proposal. Several of these factors are discussed below.

Writing Style

The most important factor in writing a proposal is to use straightforward language which consists of clear and concise writing. Proposal writing is not the place to impress the reader with wordiness and an extensive vocabulary. The following are tips on writing styles:

1. Strive for clarity, organization, and creativity in proposal writing.
2. Strive for readability by using clear, concise, and straightforward language.
3. Grammar and spelling should be correct.
4. Use active rather than passive voice.
5. Avoid using superlatives.
6. Use a positive tone.
7. Avoid jargon or acronyms, especially educational jargon when submitting to corporate or business sources.
8. Use simple short sentence structures and paragraphs that contain only one major idea.
9. Avoid a lack of detail where needed and any sort of vagueness.
10. Employ headings and subheadings.
11. Get the readers attention early in the proposal and sustain it throughout.
12. Write the proposal from the perspective of those who will benefit from it.
13. Avoid a lack of organization, e.g., lack of details where needed or lack of reference to information contained in the appendices and attachments.
14. Avoid poorly reproduced copies.

(Braukmann & Pedras, 1989; Catlett, 1989; Foundation Center, 2000; Gelatt, 1989; Miller, 1989)

Number of Writers

The number of writers involved in preparing a grant proposal will depend on the scope and size of the proposal. Smaller, simpler grants may have one or two writers, whereas, larger more complex grants may have a team of writers with one person in charge. Regardless of the number of writers, the proposal needs to sound as though there is only one writer.

Following the Guidelines

It is a must that funding guidelines be followed and all components be completed in the grant application. Failure or any deviation from the procedures or information requested in the guidelines may cause the proposal to be rejected. Therefore, carefully read and follow the directions and answer all the questions, even if they may seem repetitious or unusual (Plesich, 1989).

Meeting the Deadline

A second must in seeking grants is meeting the deadlines established by the funding agency. If not met, the proposal will be disqualified. Grant writing is a time-consuming effort that cannot be done in a day or over a weekend. It may take weeks or months to formulate idea and strategies, review the guidelines, prepare a budget, identify staff, prepare the proposal, proofread the proposal drafts, get endorsement from one's own institution and letters of support, and package and deliver a complete proposal to the funding agency. Therefore, grant seekers should construct a time line, break down the task of proposal writing into manageable pieces, and practice good time management skills.

Documents of Endorsement or Support

To demonstrate the grant seeker's qualification or credibility, it helps to have letters of support from one's own institution, advisory committees, and/or community leaders. Even if the funding agency does not require letters of endorsement, it is recommended that they be included to demonstrate the willingness of grant writer's organization/ administration and the community at large to support the proposed project.

Submission

After a proposal is submitted, there is often a significant waiting period before a decision is made about the proposal and when the funding will start. Therefore, considerations must be given to when the program or project will start. Do not fax or e-mail proposals without first ascertaining from the funding agency that is it permissible (Foundation Center, 2000). When preparing the cover letter for the proposal, always address it to an individual. Never start out with "Dear Sir" or "To Whom it May Concern." Also, verify the correct spelling of all names, titles, and addresses. (Foundation Center, 2000)

Content

A sound proposal should describe the unmet needs, what is being done about the problem, and whether the need and the problem can be addressed. Adding a unique angle for solving the problem may help to obtain funding from competitive sources. Also, the proposal should be economically reasonable. As mentioned before, thoroughly recheck the proposal against the funding guidelines. Preparing a quality written presentation of the proposal will impress the reviewers (Simmons, 1991). The use of word processors, laser printers, desktop publishing software can greatly enhance the appearance of the proposal. If submitting a proposal to several different funding sources, the word processor is an invaluable tool when making minor changes (Miller, 1989). Proofreading must not only include spelling and grammar, but cross checking the objectives, procedures, budget, and evaluation. After completing the proposal, allow a few days to pass and then review it again with a fresh mind. If an oral presentation is required, it needs to be precise, punctual, and polished.

Follow-Up

If the grant is awarded, appropriate letters of thanks need to be sent. Additional forms, reports, or budget amendments may need to be completed; and if so, they should be done promptly. If the proposal was rejected, it is wise to write a letter of thanks for considering the proposal and requesting comments about why the proposal was not accepted.

Elements of a Proposal

The proposal requirements of funding agencies will vary. Most governmental agencies provide specific guidelines on the components that need to be included in the proposal. Private funding agencies may or may not require that certain elements be addressed. According to the Foundation Center (2000), the eight basic elements that most private funders expect to see in a proposal are: summary, introduction, statement of need, objectives, methods, evaluation, future funding, and budget. The following are the major elements of a proposal that may be required in a funding application.

Title or Cover Page

The title page typically includes the title of the proposed project; name, address, telephone, and e-mail address of the applicant; the name of the funding agency; the dates of the proposed project; the date of submission of the proposal; total budget requested; and signature lines for the grant seeker and the authorizing personnel from the grant seeker's institution approving the submission of the proposal.

Abstract/Executive Summary

This section should clearly and concisely summarize the request. It should present the nature and need for the project, scope (objectives & strategies), aims (expected outcomes), and overall cost of the proposed project. The information contained in the abstract/summary should be presented in the same order as the proposal and should be written to stand alone on a single page. The abstract is often the first thing read by reviewers, and may be the only part that some reviewers read thoroughly. Therefore, the importance of this section cannot be overemphasized. (Catlett, 1989; Liedtke, 1989)

Introduction

The introduction provides the background for understanding the need for the project and a logical statement of the problem. It should be written in a convincing and enthusiastic manner. This section should clearly state who is applying for funding; provide a description of the agency's qualifications or credibility; and describe the purpose, goals, program, and anticipated results and benefits. The introduction should be brief.

Statement of Needs

In this section the proposal documents the needs to be met or the problems to be solved. The need should be supported by hard facts from statistics findings, research, surveys, expert opinions, and/or literature reviews. The writer should create a sense of urgency in addressing the unmet need(s).

Goals and Objectives

It establishes the benefits of the project in measurable terms, by stating what is to be accomplished and how it will be evaluated. The goals and objectives should be related to the problems identified in the needs statement and should be logically coupled with the procedures and evaluation sections. For the best results, the objectives should be written briefly and in a competency-based or behavior-based format, that states who, how, when, and what will be accomplished. (Braukmann & Pedras, 1989; Chase, 1989)

Methodology or Plan of Operation

This section provides a description of how the project will be implemented in order to achieve the desired results in terms of the stated goals and objectives. It should clearly state the activities and the sequences of activities to be employed in the project along with who is responsible for ensuring the activities are accomplished.

Time line

A timetable should be realistic and brief and be provided for all major activities. It should be organized in a logical sequence with dates for each task to be completed.

Literature Cited

The literature is used to justify the need for the grant. It should be complete and cover only what is necessary and current. It can be included in the introduction and needs statement sections. Complete citations should be provided.

Facilities and Equipment

A list of the types of facilities and/or equipment that are needed to accomplish the goals of the project should be provided. The list should be realistic by not overlooking, underestimating, or overestimating the needs of the project. The list should indicate what items can be provided by the grant seeker's own institutions at no cost and what needs to be obtained through the grant.

Personnel

The staffing plan lists the personnel needed to carry out the objectives of the project. It includes job descriptions, responsibilities, time commitments, and qualifications for each job role in the project. Resumes are usually attached for key personnel. The description should identify any in-kind matches of personnel provided by the grant seeker's institutions as well as unpaid persons, such as advisory committee members or volunteers. (Catlett, 1989; Chase, 1989; Plesick, 1989)

Evaluation Plan

The means by which a grant will be evaluated to determine its success level is provided in the evaluation plan. The evaluation criteria are tied to the objectives and should be specified to explain how the results will be assessed and documented. The plan should describe what instruments, indicators, or measurements will be used; what will be evaluated and why; when the evaluation will occur; and who will conduct the evaluation. For a large grant, the funding agency may require that the evaluation be a separate item on the budget and may be conducted by individuals independent of the grant. (Braukmann & Pedras, 1989; Catlett, 1989; Liedtke, 1989; Redmann, 1993)

Dissemination Plan

The purpose of a dissemination plan is to distribute or publicize the results of the project. Some funding agencies consider this to be important while some don't, especially small funded grants. The methods of dissemination will depend on the nature of the project and the requirements of the funding agency. The plan will describe the steps to be taken to promote the product or findings to the target audience. Dissemination techniques include presentations at professional conferences, journal articles,

pamphlets, books, reports, demonstration of techniques or materials, curriculum guides, training programs, seminars, etc. (Catlett, 1989; Liedtke, 1989; Redmann, 1993)

Budget

The budget explains what funds will be needed and how they will be spent. It should be realistic and tied to the objectives and methodology. A well-constructed budget should be itemized and each item should be justified in the budget narrative. Budget items are typically broken out into personnel cost and nonpersonnel cost. Personnel cost include salaries and fringe benefits for staff, stipends/honoraria or any participants, and fees for consultants. Nonpersonnel cost may include equipment, materials, supplies, telephone, postage, rent, travel, printing, etc. The budget should list any in-kind matches (items that will not cost the project), such as overhead cost or personnel cost provided by the grant seeker's institution.

Supporting Documents/Attachments/Appendices

The nature of the proposal and the requirements of the funding agency will dictate the amount of supported materials that needs to be supplied. Attachments and appendices can be useful for supplying valuable information, but care should be taken to not overload the reviewers with too much paper. Appended items may include resumes of key personnel, letters of support, agreements, definitions, organizational charts, laws, and instruments.

Conclusion

Grant writing does not have to be difficult if a systematic approach is employed. Even though grant writing is a time-consuming process, it does get easier as one gains experience. Tips from successful grant writers are to allow sufficient time for working on a proposal, developing proposal elements, and writing the proposal (Bailey, 1985). Successful grantseeking is a question of developing a positive attitude, thinking long range, and being persistent and patient (Braukmann & Pedras, 1989; Gelatt, 1989). Finally, since grant writing is a learning process, make it a part of your routine and make a commitment to continue to learn about grantsmanship.

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Strategies for Using the Statistical Package for the Social Sciences (SPSS) for Business Education Research

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Abstract

A systematic approach to using statistical analysis packages including the Statistical Package for the Social Sciences (SPSS) can aid researchers in being more productive. This article introduces strategies for coding the data, setting up the worksheet, presenting the data, and obtaining training in SPSS. The principles of consistency, accuracy, and conservatism are discussed in relation to data handling.

Introduction

This article presents information helpful to researchers using the Statistical Package for the Social Sciences (SPSS) for Windows or any other similar statistical analysis package for data analysis. Areas addressed include coding the data, setting up the worksheet, presenting the data, and obtaining assistance in learning SPSS. Strategies for conducting a research study, for selecting appropriate statistical tests (Lambrecht, 1999), and for writing a research article (Blaszczyński & Green, 1998, 1999) are beyond the scope of this article and are addressed elsewhere.

Coding the Data

Prior to using SPSS or another statistical package for quantitative data analysis, researchers need to think about the research data they have collected. If the data source is a completed hard copy survey, some researchers may have already coded responses on the form to later expedite the data input process. If item responses were not coded on the research instrument, researchers have at least two options: (a) they can use a coding sheet to organize the data for input, or (b) they can code the data directly from the data source into the software program. Option a is more cumbersome but aids in arranging the data appropriately. There is, however, an opportunity to introduce error in the transferring of data from the data source to a coding sheet. Option b may be faster in the short term, but such a practice introduces the possibility of error because the researcher may not have planned for each contingency. In response to an open-ended question about marital status, for example, an unseasoned researcher may think of only two value labels for the variable marital status—single and married—rather than the five that are commonly used by researchers (single, married, divorced, widowed, and separated). In that case value labels would need to be input for divorced, widowed, and separated. Prior plan-

ning on a coding sheet helps the researcher to avoid such delays in entering the data or to prevent errors.

Experts advocate using a coding sheet before beginning data input. Davidson (1996) emphasized the importance of data control with the following principle: "Take control of the structure and flow of your data" (p. 32). Zanna and Darley (1987) recommended that researchers "... conduct the data analyses with due regard for the security of the data and its accuracy" (p. 125). Another rationale for completing a coding sheet or codebook was promoted by Judd, Smith, and Kidder (1991). When data are set aside and returned to after a few days or weeks, reconstructing what the numbers in a data matrix mean can be difficult.

A sample data set involving country music stars and their record sales appears in Table 1. The resulting coding sheet generated from that data set is presented in Table 2.

Setting Up the SPSS Worksheet

Researchers need to make decisions about the data they have collected. How will the data be organized and categorized? Many of these decisions revolve around the principles of consistency, accuracy, and conservatism.

One guiding principle researchers should follow is that of consistency. If the decision is made to code missing data as 9, then 9 should always be used (or variations of 9 based upon the appropriate number of digits required for the particular variable). For example, if one is coding the number of years of teaching experience of survey respondents, using a 9 to indicate missing data would not be logical since a respondent could have nine years of teaching experience or may have over nine years of teaching experience requiring a two-digit response. Instead 99 would be an appropriate number for coding missing data.

Table 1
Sample Country Music Stars Data Set

ID	Artist	Act	Gold	Plat	No.1s	Top 10s	Gender	Age	Opry
1	Alabama	Group	2	14	32	45	Male		No
2	David Ball	Single	3	1	5	20	Male	39	No
4	John Berry	Single		1	4	4	Male	36	No
5	Clint Black	Single	1	4	9	20	Male	33	Yes
6	Faith Hill	Single			2	3	Female	28	No

Note. ID = Identification number from the questionnaire, Act = Type of act (single, duo, or group), Gold = Number of gold records, Plat = Number of platinum records, No.1s = Number of number 1 records, Top 10s = Number of records reaching the top 10 in sales, Opry = Member of the Grand Old Opry.

Table 2
Sample Coding Sheet for Country Music Stars

Data Set		Value Labels	Variable Type	Missing Data
Variables	Description			
ID	Identification Number		Numeric	999
Artist	Name of Performer(s)		String	
Act	Type of Act	1 Solo 2 Duo 3 Group	Numeric	9
Gold	Number of Gold Records		Numeric	9
Plat	Number of Platinum Records		Numeric	99
No.1s	Number of Number 1 Hits		Numeric	99
TopTen	Number of Top 10 Hits		Numeric	99
Gender		1 Male 2 Female	Numeric	9
Age			Numeric	99
MarStat	Marital Status	1 Single 2 Married 3 Divorced 4 Widowed 5 Separated	Numeric	9
OpryMmbr	Grand Old Opry Member	1 Yes 2 No	Numeric	9

A good practice to follow when setting up the SPSS worksheet is to include the respondent's identification number as the first variable or column in the worksheet. Generally, researchers number questionnaires to facilitate data organization and to minimize the number of surveys involved in a second or third mailing. The sample data set in Tables 1 and 2 includes this feature. Following such a practice creates a better audit trail of the data.

Some researchers advocate entering the data twice to reduce the likelihood that errors have crept into the data. Other re-

searchers have colleagues or assistants read the original data while the researcher verifies the accuracy of the input.

Another measure that can be instituted to verify the accuracy of the input data is to run frequencies of the data set. Examining the frequency output will reveal any out-of-range data errors. Discovering a case with 85 years of teaching experience for an individual would signal an obvious data input error.

A suggested guideline for researchers is to be conservative when given a range as a response. If a participant responds with a

range of numbers, the researcher should use the lower of the two numbers when inputting data. Otherwise, it would appear that the researcher is trying to influence or improve the data results.

Presenting the Data

Researchers generally do not run statistics and write the conclusions and recommendations the same day. Reflection is needed to craft a sound research article. At times data should be segmented or combined for further analysis to determine the existence or non-existence of certain relationships.

Manuscript tables should be prepared in accordance with the *Publication Manual of the American Psychological Association* (APA) (1994). For further guidance in illustrating a research article, consult the article by Arosteguy (1999). Accuracy is essential in presenting the appropriate number of decimal places in the tables that illustrate the research article. Care should be taken to report percentages as whole numbers only. P-values should be specified in notes to tables, while explanatory notes to tables should be included when necessary to clarify the table contents (APA, 1994).

The explanatory note following Table 1 explains the abbreviations that appear in the table column headings.

Obtaining Assistance in Learning SPSS

Researchers can obtain assistance in learning SPSS through the on-line tutorial, the statistical coach, and the results coach. In addition, the SPSS website, www.spss.com, has informative white papers that can provide clarification for researchers.

Books are another potential source of assistance. SPSS has published guidebooks to the various versions of its software. Another book worthy of consideration is the *SPSS 9.0 Guide to Data Analysis* (Norusis, 1999).

Summary

No software package alone can perform the interpretation of research results yielded by quantitative analysis. Penzias asserted (1989), "Machines only manipulate numbers; people convert them to meanings" (p. 11). Researchers are responsible for determining the meaning of the data they have collected and for the accuracy of the results they report to agencies, institutions, and journals. Strategies presented in this article for coding the data, for setting up the SPSS worksheet, and for presenting the data to others may be useful in employing a systematic approach to using statistical analysis software. Such an approach emphasizes the principles of accuracy, consistency, and conservatism that are cornerstones of sound, ethical research.

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Tools for Framing Research Problems

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Abstract

Three object-based tools—the spreadsheet, the flowchart, and the picture frame analogy—facilitate framing research problems. These tools also help researchers express, scope out, and gauge the manageability of research projects. Spreadsheets may be used for constructing and expressing the research problem, hypothesis(es), research question(s), and objective(s). Flow charts aid in displaying the key processes of a research project and in progression of deductive or inductive research models. The picture frame analogy helps communicate key determinants of a successful research project. While these tools do not comprise a comprehensive set of graphical tools researchers may use, they are simple, easy-to-use, and effective.

Introduction

The ability to solve problems creatively involves, *person-, language-, and object-related intelligences* (Chapman and Freeman, 1996). Researchers commonly exercise these intelligences across the life cycle of a research project. From the *person-related intelligence* perspective, substantial time is invested in reflection, analysis, design, development, implementation, evaluation, and the requisite teaming or collaboration to realize project goals. From a *language-related intelligence* perspective, text is used to solidify project plans and report project methodology and results. As a result of viewing the research project from an *object-related intelligence* perspective, researchers commonly report pertinent project result-oriented information in spreadsheet and graphic forms.

The writers advocate early use of spreadsheets and graphs as tools for framing research problems. Overview information and examples are provided for three such tools the writers use in graduate-level research methods instruction. These include use of: (a) a spreadsheet for constructing and expressing the research problem, hypothesis(es), research question(s), and objective(s); (b) a flow chart for depicting the key processes of a research project or progression of deductive or inductive research models; and (c) the picture frame analogy for communication of key determinants of a successful research project.

The Spreadsheet as a Problem Framing Tool

Chunked information displayed in columns and rows enhances readability and understanding of that information. Morgan (as cited in Day, 1998) suggested that a tabular presentation of data is often the heart of a research report. Better yet, the placement of preliminary research planning elements in a spreadsheet serves as the brain of the project aiding the researchers as they envision the scope of a potential project from statement of the problem to be investigated to delineation of specific objectives.

The following generic definitions are offered as aids in constructing a statement of the problem, hypothesis(es), research question(s), and objective(s).

Statement of the Problem – succinct expression of the research focus which identifies an inadequacy, lack, or need, that *requires attention and fulfillment*; describes an unhealthy conflict that *must be resolved*, or poses a timely question that *needs to be answered*.

Hypothesis – statement of the expected relationship or difference between two variables of which one is independent and the other is dependent.

Research Question – query sentence seeking an answer to the who, what, when, where, why, and how of the research project. Research questions help form the conceptual framework or backbone of the research study. They serve as guides for developing the key procedures to be followed when conducting the research.

Objective – key action step to be taken in attaining the purpose or major goal of the research study.

Table 1, a spreadsheet, illustrates how use of a spreadsheet aids in the fleshing out of preliminary research elements.

The Flow Chart as a Tool

Flow charting information proves beneficial in conveying the key processes of a research project, namely, those involving the research design, subjects, instrumentation, data collection, and data analysis. Figure 1 shows how separating these processes assists the researcher in fleshing out each process and emanating procedures, as well as how processes connect.

Table 1

The Effect of Related Work Experience as a Requirement for Business Education Teacher Licensure Based upon Teacher Evaluations Using the Tennessee Framework for Teacher Evaluation

Statement of the Problem	Hypothesis	Research Question	Objective
Little research exists regarding the effect of <i>required related work experience as a part of the teacher preparation program on the evaluation (Tennessee Framework for Teacher Evaluation) of business education teachers in Tennessee high schools.</i>	<i>Evaluations</i> (dependent variable) of business education teachers in Tennessee high schools do not differ on the basis of <i>required related work experience</i> (independent variable) as part of their teacher education program.	<u>Who</u> are the business education teachers (a) who have related work experience and (b) who are the teachers who received a business education teaching license without completing related work experience (<u>where</u>) in Tennessee high schools?	Identify business education teachers in Tennessee high schools (a) who were required to document related work experience as a part of their teacher preparation, and (b) who were not required to document related work experience.
		(<u>What</u>) Should related work experiences be required for initial licensure in business?	In May 2001, analyze teacher evaluations of business education teachers in Tennessee high schools.
		<u>How</u> does related work experience affect teacher performance in Tennessee high schools based on evaluations using the Tennessee Framework for Evaluation?	Compare evaluation (Tennessee Framework for Teacher Evaluation) results of those teachers who have documented related work experience as part of their teacher preparation with those who do not.
		(<u>Why</u>) Should business education teachers be required to document related work experience in order to receive a license to teach business subjects in Tennessee?	Determine if there is a significant difference.

Flowcharting helps a researcher show conceptual progression across the research project. Figure 2 illustrates a generic deductive model for conducting research. In a deductive model, research is used to test theory. The flowchart helps the researcher hone in deductive research's foundation in theory. Rather than starting a research project, researchers are encouraged to think about the conceptual base that warrants further research. If multiple theories relate to the researcher's investigation, the researcher is compelled to think about which theory(ies) most closely align or interface with the proposed research. Such re-

flection also helps the researcher organize the reporting of the review of related literature. Subsequent research and emanating conclusions either build upon or fail to support the underpinning theory.

Figure 3 provides an inductive model with theory issuing from the analysis of research data. Oftentimes, research pertaining to innovation yields new theory. With flowcharting of an inductive model, the researcher reflects upon how research conclusions proffer theory.

Figure 1
Key Processes of a Research Project

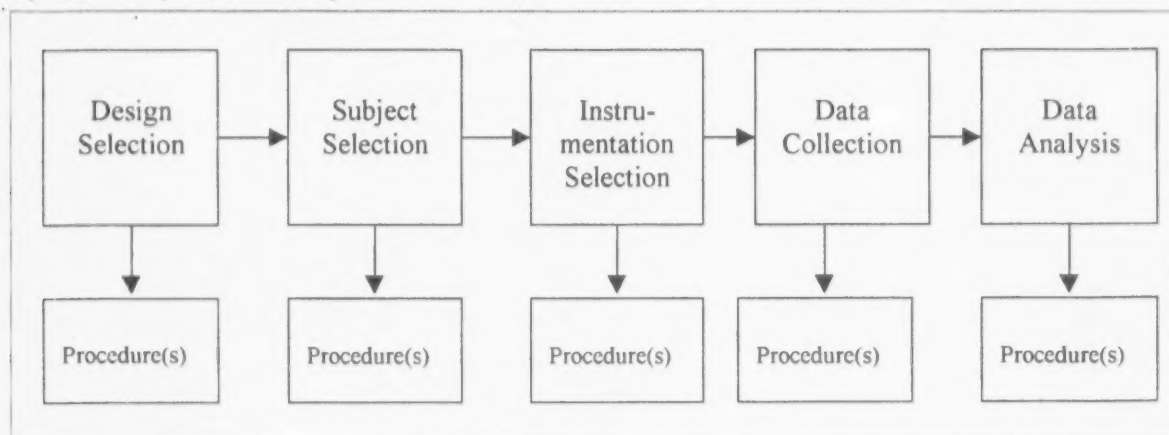


Figure 2
Generic Deductive Conceptual Framework for a Research Project

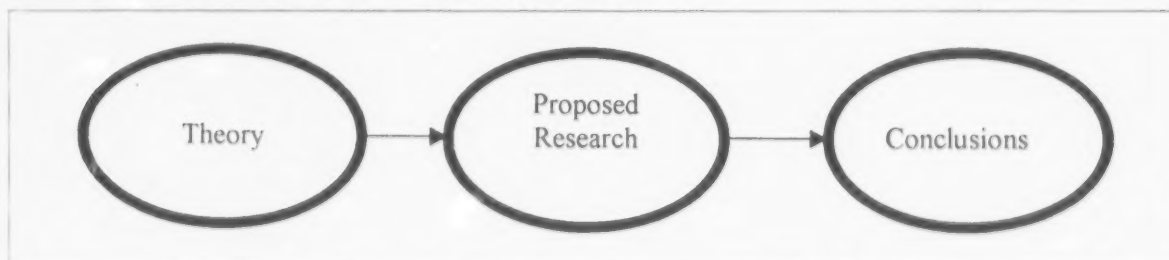
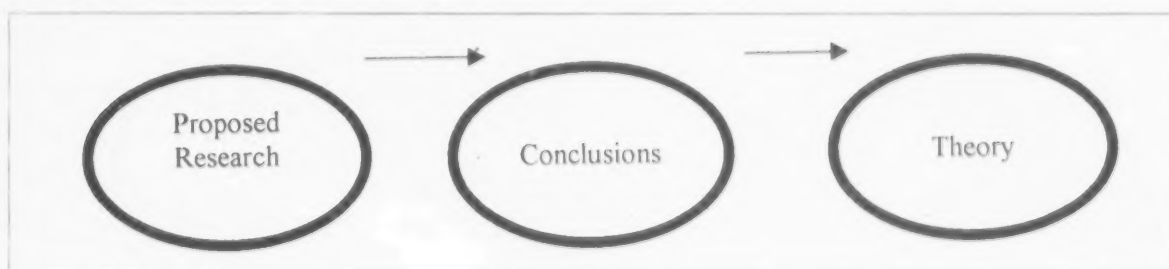


Figure 3
Generic Inductive Conceptual Framework for a Research Project



The Picture Frame Analogy

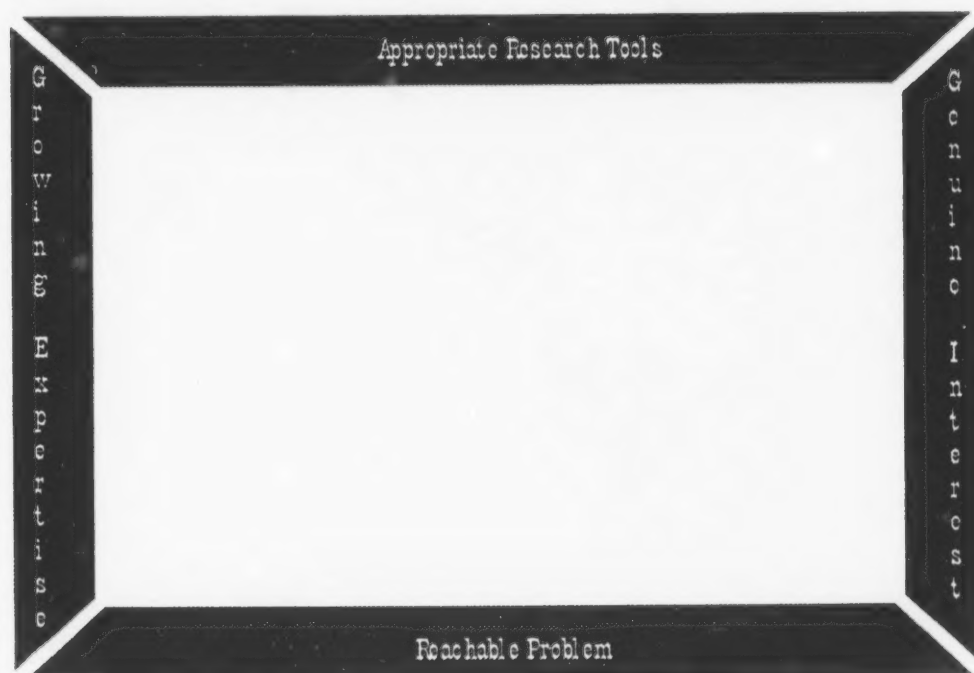
When broaching a research endeavor, the researcher must determine whether a four-part litmus test is met. This four-part test consists of four questions.

1. Is the problem a researchable problem?
2. Does investigation of the problem facilitate the researcher's growing expertise?

3. Does investigation of the problem reflect a study of genuine interest for the researcher?
4. Does/can the researcher obtain the appropriate research tools to conduct the project?

An affirmative answer is needed for each question in order to prevent wasting of scarce resources and engaging in an unmanageable project. Figure 4 conveys these four question areas as parameters or boundaries for a research project.

Figure 4
The Four Frame Sides of a Research Project



While the use of the framing analogy should not be over generalized, this analogy has merit in helping researchers determine the match between a potential research endeavor and the researcher's capacity to manage the endeavor. The importance of each section of the frame is described as follows.

The Researchable Problem

In the picture frame analogy the bottom side of the frame represents *the researchable problem*. Without an appropriate problem the research project lacks foundation and grounding. Rummel and Ballaine (1963) suggested that the best way to find researchable problems is to become a specialist in one or more areas. Being a specialist enables the researcher to analyze a field so as to uncover problems that remain or need to be solved. Research problems commonly appear as inconsistencies or contradictions. The core processes of a field or discipline offer opportunities for study and improvement. Areas of dissatisfaction often contain researchable problems. Babbie (1998, p. 90) shared that popular problem points of focus include characteristics, orientations, and actions with units of analysis spanning individuals, groups, organizations, and social artifacts. Lateral thinking, espoused by de Bono (1970), helps researchers generate plausible research problems, grasp the research process as a whole, and select a viable a research design.

Growing Expertise

The left side of the picture frame symbolizes the area(s) of expertise in which the researcher aspires to grow. Rather than research disparate topics that result in a research agenda resembling a thinly distributed scatter gram, the researcher's focus and future are best served by adherence to a research agenda that adds up to a logical whole. Having and following a well-defined research agenda facilitates investigative alignment and collaboration with other researchers and research-oriented entities. As Babbie (1998) along with Gay and Airsian (1999) have so aptly observed, researchers who have special expertise evoke trust in judgment especially in controversial matters. Conversely, inquiry is hindered or questionable when researchers study and report outside their realms of expertise.

Genuine Interest

The right side of the picture frame denotes an area of deep and abiding interest for the researcher. Without substantial, enduring interest in an area of study, the researcher risks intermittent or sustained disconnection from the research endeavor. A research quest warrants pursuit if it allows the researcher to satisfy and renew his/her natural curiosity. Genuine interest is a prerequisite for a long-haul research agenda mindset. Consis-

tent with Wiggins and McTighe's (1998) Rubric for the Six Facets of Understanding, genuine interest in an area of study fosters explanation, interpretation, application, perspective, empathy, and self-knowledge.

Appropriate Research Tools

The top side of the frame in the picture frame analogy represents the tools necessary for conducting the research. These include but are not limited to, appropriate design, project management expertise, and statistical tools. *Appropriate design* determines appropriate methodology and analysis. No amount of compensation in methodology and/or analysis can correct inappropriate design and resulting inherent structural defects. Selection of a fitting design makes project resource allocation effective and efficient. *Project management expertise* enables the researcher to complete the project as planned and on time and within budget. This expertise makes a project *do-able* with a discernable starting point, well-delineated processes, and a definite closure. Appropriate statistical tools allow the researcher to analyze and interpret project outcomes accurately. While just-in-time understanding of how to use statistical tools is permissible, the researcher needs to continue growing his/her statistical tool knowledgeable base toolkit to ensure selection of proper tools at the onset of a project.

Composite Benefits of Proper Framing

A myriad of benefits result from a well-framed research project. Not only does the project (a) address a researchable problem, (b) constitute an area of study consistent with the researcher's growing expertise, (c) promote genuine interest, and (d) use appropriate research tools, but it also makes project outcomes more easily understood by consumers of the research. From a bottom-line perspective, as depicted in Figure 5, the research project fits the frame and adds value to the researcher's professional and career development, and to his/her field or discipline.

Moreover, the successfully conducted research project (a) serves as a frame of reference or template for future research, (b) expands the researcher's understanding of research as a process rather than an event, and (c) increases the likelihood of the researcher engaging in additional research.

In sharp contrast, Figure 6 conveys a research project that does not measure up to its frame. Perhaps the project's scope is narrow or does not match the researcher's expertise, interests, or research tools. Figure 7 shows how an overly large project or marginally researchable problem daunts the researcher and mismatches the research frame requirements. The problem and project appear unmanageable and dwarf a researcher's expertise, interests, and research tools.

Figure 5

Example of a Well Framed, Manageable Research Project

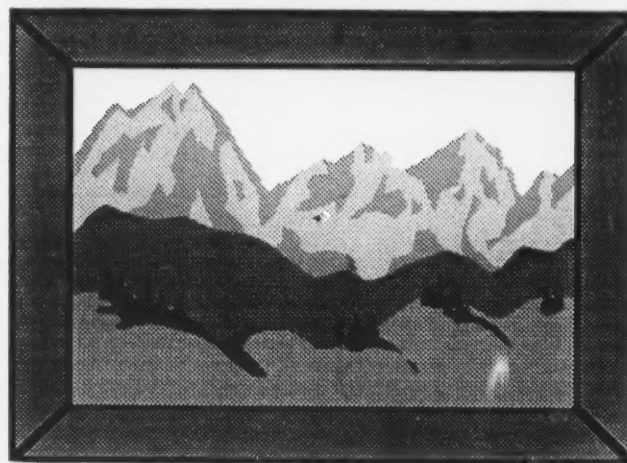


Figure 6

Example of a Research Project with an Undersized Scope

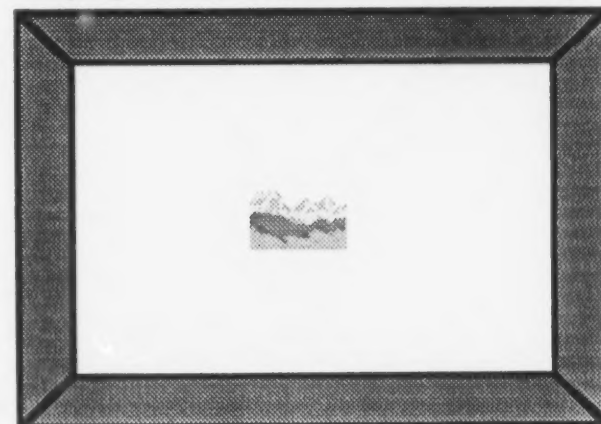
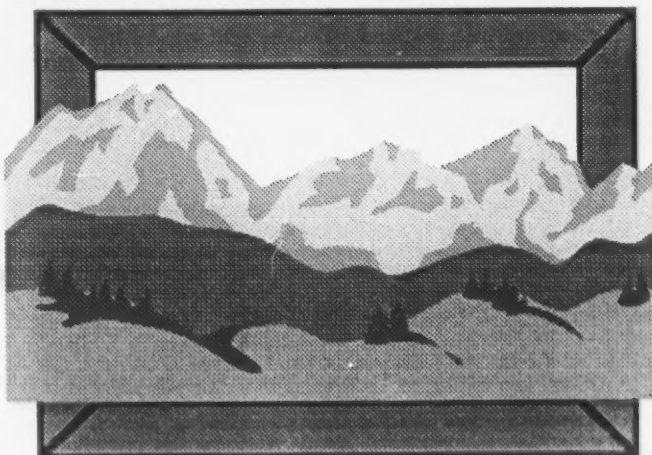


Figure 7

Oversized Focus or Scope for Research Project



Summary

The use of spreadsheet and graphic forms aid in the framing of research problems. Spreadsheets may be used for constructing and expressing the research problem, hypothesis(es), research question(s), and objective(s). Flow charts aid in displaying the key processes of a research project of progression of deductive or inductive research models. The picture frame analogy helps communicate key determinants of a successful research project. These object-based tools support creative problem solving associated with framing research problems. While they do not comprise an all-inclusive set of graphical tools worthwhile for researcher use, they do represent simple, easy-to-use resources for conceptualizing manageable research projects.

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